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ST. THOMAS'S THEORY OF THE CAUSES OF RELATION

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St. Thomas maintains that relation by its nature or *ratio* does not necessarily posit something real in the subject to which it is attributed. This *ratio* can be fully verified in a being of reason.[1] Nevertheless, as one of the genera of real being, relation must indicate some reality in nature. From these two positions he draws his primary division between real relations and relations of reason. We confine this study to the classification and causes of real relations.[2]

If, as St. Thomas holds, real relations are first intentions, they must be immediately founded on things and be the immediate likeness of something in things.[3] If I truly say that John Smith Sr. is the father of John Smith Jr., then "father of John Smith Jr." should signify something as real in John Sr. as "man," or "white," or "six feet tall," if I truly predicated these things of him. What new characteristic has the father today that he did not have before his son came into being? What, if anything, has been added to him? If the *ratio* of relation does not

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[1] Cf. THE MODERN SCHOOLMAN, XXIV (January, 1947), 101-2.

[2] The best classification of relations of reason (which also supplies some negative norms for real relations) is given in *De Pot.*, 7. 11. They are divided according to their origin, which is always mediately in things and immediately in our way of understanding things. For a few of the many interesting applications cf. *De Ente*, 4; *In I Sent.*, d. 26, 1. 1; *De Ver.*, 1. 5 ad 16; *ST*, I, 13. 7; 13. 12; 58. 2; 85. 3, 4, and 5.

[3] *De Pot.*, 7. 9; *In I Sent.*, d. 2, 1. 3. The latter text is discussed in THE MODERN SCHOOLMAN, XXIV (November, 1946), 32.

necessarily signify some new reality in the subject, what criterion can we use to discern and locate this reality? St. Thomas always refers us to some natural *esse* which relation has in the subject of attribution. This *esse* in turn depends on some foundation or cause in the related term; if there is something in the subject by which it depends on, or is compared to another, the relation is real. Equality, for instance, is a real relation because its foundation—quantity—is a reality in the related terms.[4]

The *esse* of relation, then, is the center of the problem. But we can reach the pole of the spiral and see it in its proper perspective only by approaching through its outer coils, which, in this instance, are the causes. And the first question is: What are the causes and how do they cause? In answer we will attempt here to establish the following points of St. Thomas's teaching: that the immediate foundation or cause of relations in creatures is always an accident; that these accidents are ultimately only two, quantity and action-passion; and that the relative reality which is caused is not a physical form or entity added to the subject with its foundation although it is distinct from both. These points will not be taken up separately in the order given but drawn concurrently from a study of various texts. The latter deal with the essential division of real relations, the scheme of the categories, the origin and multiplication of relations, and the meaning of action, number, and similitude.

THE DIVISIONS OF REAL RELATIONS

When an accident is defined in the abstract, its genus is drawn from the mode of being or predicament to which it belongs, and its specific differences from the causal principles in the subject. If the accident to be defined inheres in its subject by the mediation of another accident, the latter as immediate subject and cause supplies the specific difference.[5] Hence to seek the essential differences of relations is the same thing as to seek their causes.

Early in his writing career St. Thomas arrived at a determination of these causes.[6] Commenting on the third book of the *Sentences* and referring to the *Metaphysics* of Aristotle for support, he says that all relations are founded either on quantity or what is reduced to the genus of quantity, or on action and passion. To illustrate what he means by

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[4] *In I Sent.*, d. 26, 2. 2 ad 4; d. 33, 1. 1 ad 2; *Quodlibet. IX*, a. 4.

[5] *De Ente*, 7.

[6] But not without a previous period of hesitation, as may be noted in the indeterminateness of some statements on the matter in the commentary on the first book of the *Sentences*. Cf. *In I Sent.*, d. 2, exp. text.; d. 26, 2. 2 ad 4; d. 33, 1. 1.

the reduction in the first member, he adds that "one" is reduced to quantity as the principle of discrete quantity. On it are founded the relations of specific identity (one in substance), equality (one in quantity), and similitude (one in quality).[7] In later passages he mentions other causes but they are all reduced to the above two, which from this time on are always proposed as marking the essential divisions of real relations.[8]

However, a difficulty arises over one exceptional text. In giving his twofold division St. Thomas frequently seeks corroboration from a text of Aristotle's *Metaphysics*. Turning to that text we find that Aristotle is apparently proposing a threefold division and that St. Thomas in his commentary on the passage seems to accept it.[9] The first type of relations is mutual relations founded on quantity (Aristotle says number, but St. Thomas corrects him). The second type is the mutual relations founded on the active and passive powers or their exercise. The third type is mixed. One term, that is, the measurable, knowable, and perceptible, is called relative because something else involves a reference to it. In this term, of course, St. Thomas finds a relation of reason. But Aristotle indicates that knowledge and perception are really relative to the knowable and perceptible.[10] The latter relation is the source of

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[7] *In III Sent.*, d. 5, 1. 1 sol. 1.

[8] *CG*, IV, 24; *De Pot.*, 7. 9; 8. 1; *ST*, I, 28. 4. This seems also to be the division in *De Ente*, 7.

[9] *Metaphysics* v. 15; *In V Meta.*, 17. 1001-4 (Marietti).

[10] Later Aristotle says that the first two types are like contraries and have an intermediate because their terms are in the same genus; but the terms of the third type are in different genera and so have no intermediate (*Metaphysics* x. 6. 1056b 32—1057a 37). St. Thomas uses the same notion, saying that the terms of the third type are not in the same order of being.

In his statement of the third type Aristotle seems to make the measurable co-ordinate with the knowable and perceptible, and measure co-ordinate with perception and knowledge. This is misleading. Aristotle, as well as St. Thomas, understood that the knowable and perceptible are the measure of knowledge and perception, not vice versa. His treatment of perception and knowledge in the *Categories* (7b 22 ff.) and in *The Soul*, and of truth, falsity, and ignorance in the *Metaphysics* (ix. 10), supposes that their objects measure the faculties of perception and at least the "passive" mind. Yet in the *Metaphysics* he says that *"in some sense* knowledge is measured by the knowable" (x. 6. 1057a 11). If there is a sense in which knowledge is not so measured, but is a measure, we should perhaps look for that sense in the characteristics of that mysterious "active" mind considered in the third book of *The Soul*. Passive mind becomes all things; active mind is productive of all things, standing to them as art to its material, is always active, is eternal and immortal (430a 10-25), and explains why in the universe as a whole actual knowledge is prior even in time to potential knowledge, "for all things that come into being arise from what actually is" (430a 20-25 and 431a 1-3). Certainly this mind seems to measure its objects.

the difficulty. John of St. Thomas [11] and Cajetan [12] with their many followers hold that this relation requires a foundation distinct from quantity and action-passion.

However, it seems unlikely that in other places St. Thomas would call on this text to support a twofold division unless he could see some support for it. The divergent texts can be reconciled if we note that Aristotle is not proposing primarily a division of relations, but a division of relatives—that is, of sets of mutually related terms taken *conjunctim*. St. Thomas frequently gives this type of division, although it is not that of Aristotle, but one which he found conveniently arranged in the *Metaphysics* of Avicenna. In his first class of relatives there is no foundation in either term to render it relative to the other. Here there are mutual relations of reason. In the second class there is a foundation in both terms. These are mutual real relations, and Aristotle's first and second class fit in as subdivisions of this. The third class is parallel in the three authors. In one term there is no foundation and so only a relation of reason; in the other term there is a foundation and a real relation.[13]

But St. Thomas seems to think that Aristotle in his first two classes of relatives had also hit on the causes of real relations. Hence he follows this in his own division and clearly places the real relation from Aristotle's third class in the action-passion division.[14] Of course, he thus commits himself to a use of those terms which transcends the Aristotelian categories; he uses them analogically to signify all operation including even knowledge and creation. However, this is not accidental; he does this deliberately to bring out the analogy of causality and opposition implied in these terms.

These texts, then, leave only two per se causes of relation, quantity and action-passion. St. Thomas adds, however, that two other categories, substance and quality, are causes of relation *per accidens*, that is, in so far as they have something of the nature (*ratio*) of the former.[15] How this happens will be seen as we progress.

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[11] *Ars Logica*, II, 17. 2 (*Cursus Philosophicus Thomisticus* [ed. Reiser; Marietti, 1930], I, 584).

[12] *In I Summae Theologicae*, 28. 4 ad 2.

[13] *In I Sent.*, d. 30, 1. 3 ad 3; *In V Phys.*, 3; *ST*, I, 13. 7. St. Thomas uses this division only when he wishes to make the point that mutual predication of relative terms does not always mean that both terms are really related, as in the knower-known and creature-Creator relationships.

For Avicenna cf. *Metaphysica*, III, 10 (*Opera* [Venice: 1508], fol. 83). He does not use the term *relatio rationis*, but clearly expresses the idea and uses parallel terms (*relatio intelligibilis . . . quam intellectus adinvenit*) used by St. Thomas in other places.

[14] *De Pot.*, 7. 10.

[15] *Ibid.*, 7. 9.

SCHEME OF THE CATEGORIES

In outlining the order of the categories St. Thomas uses the modes of predication as his norm, after pointing out that these are proportioned to the analogical modes of being. Then he says that the object signified by the predicate can be related to the subject in three ways. First, the predicate may signify what the subject is, something belonging to its essence. Such a predicate belongs to the predicament of substance. Secondly, the predicate may signify something which, although it is not of its essence, is in (*inest*) the subject. Two types, those belonging in the predicaments of quantity and quality, are in the subject absolutely, that is, without reference to anything outside the subject. Another type, *ad aliquid,* or the predicament of relation, is in the subject but not absolutely; it has an intrinsic reference to something outside the subject. Finally, the subject may be described by a predicate drawn from something outside the subject. Thus by reason of causality we use the predicament of action for denomination of the agent from its effect, and the predicament of passion for denomination of the patient from its cause. However, these predicaments do not signify something entirely outside the subject, for action is in the agent as its principle and passion in the patient as its term. The last four predicaments—time, place, posture, and *habitus*—are drawn from some extrinsic measure or adornment of the subject and signify primarily something entirely outside the subject.[16]

In this scheme, relation clearly occupies a central position. Substance, quantity, and quality belong to the subject absolutely. Relation is inherent in the subject, but also requires something extrinsic to it. The last six predicaments primarily signify something outside the subject, although their reference terminates in the subject. We must note also that action and passion share the central position of relation. For, while they have a primary reference to an extrinsic term, they are in some way in the subject. Now, St. Thomas explicitly says that the last four predicaments are themselves founded on relations and so cannot be causes of relation.[17] This also appears from the fact that relation, as an inherent accident, must be founded on something inherent. This scheme, then, leaves the three absolute predicaments and action and passion, so far as they are inherent, as possible foundations for relation.

But if we turn to St. Thomas's scheme of the order of physical generation of accidents in the subject, substance is eliminated at least as an immediate cause of relation. St. Thomas's general principle is that, because relation has the least being of all the genera, it must inhere in

[16] *In V Meta.*, 9. 890-92; *In III Phys.*, 4.
[17] *In V Meta.*, 17. 1005.

substance by the mediation of other accidents.[18] Substance, of course, remains the primary cause and subject of all accidents; but the latter have an order among themselves, so that one is the immediate cause and subject of another. This order is based on the perfection of accidental forms. One that is more perfect in its nature and closer to substance has *esse* prior to that of the others. On this basis, relation is the last and most imperfect of the inherent accidents. It is last because it depends not only on the *esse* of the subject but also on the *esse* of the accidents which cause it. It is most imperfect because, since its very *ratio* is *ad aliud,* it depends also on the being of an extrinsic term.[19]

Besides the elimination of substance as an immediate cause of relation, we may note, in passing, another point indicated here. While relation has the most tenuous being of all the categories, it requires more being, both in subject and in term, than do the others. Now, since perfection somehow lies in complete being, a thing fully actualized in all its relations should have attained its perfection. And this is what St. Thomas indicates when he says that the perfection of a thing cannot be judged only by what inheres in it absolutely but also by its order to other things.[20]

THE ORIGIN OF RELATIONS

How, then, does this last "form" or perfection of a thing come into being? Here again St. Thomas draws a stone from the Aristotelian quarry after chipping off an unnecessary excrescence. The stone was embedded in one of Aristotle's arguments for the eternity of motion, which, briefly, is this. Since mover and moved are relative terms, any given motion must be preceded by another, this by another, and so on to infinity. Why? Because before the given motion can take place, mover and moved must be brought into the proper relations of proximity and other dispositions necessary for their causal contact. But, he says, since a new relation cannot be effected without a change in one or both of the terms, these terms must have been the subjects of a prior motion which brought them into that relation. But the prior motion is subject to the same conditions, thus indicating a motion prior to it. Hence motion must be eternal.[21] But he also argues that relation itself is not a subject of motion. For a relation may begin or cease in one term, not because it has changed, but because the other term has changed. Movement, then, is accidental to relation.[22]

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[18] *In III Phys.,* 1; *In XII Meta.,* 4. 2457.
[19] *CG,* IV, 14.
[20] *De Pot.,* 7. 9.
[21] *Physics* viii. 1. 251b 1-10.
[22] *Ibid.* v. 2. 225b 10; *Metaphysics* xi. 12. 1068a 11.

On the basis of creation St. Thomas eliminates the necessity of eternal motion, but he accepts and develops this position on relation. Relation itself is not a term of motion, but a new relation cannot arise without a change in one of the terms. Motion is accidental to relation; that is, relations change as a consequence of a change in something else, namely, in their causes, which are per se terms of motion. Thus a motion of alteration terminates in whiteness, causing the subject to be like all white things; or a motion of increase terminates in a new quantity, causing its subject to be equal to something else.[23]

On this basis St. Thomas makes another division of relations according to their origin. They may arise (1) from a motion in one term without any motion whatever in the other. All nonmutual relations are in this class. For instance, there is no real relation in God to creatures, and God does not change, but creatures change and their relations to God change; hence new relations (of reason) are attributed to him owing to the changing relations in creatures. Or a new relation may arise (2) from a motion in both terms, either (*a*) concomitantly, as in the instance of father and son, or (*b*) from a present change in one term on the supposition of a past change in the other. For instance, the relation of equality may arise in term *A* because term *B* has grown to the same size as *A*. *A* does not change when the new relation arises, but it had previously grown to this size.[24]

The last instance (2*b*) is most important for our purpose. Here a subject, without the addition of a new entity and with no intrinsic change at the time, acquires a new relation, a new category of being. To many this is a hard saying, but at least once St. Thomas faced and solved the exact problem. In nonmutual relations, he says, it is easy to see that if the extreme in which there is a real relation changes, a new relation can be attributed to the other term without any change in it; for, since this is a relation of reason, nothing new need be added.

> But in those in which relation is really found in both extremes, it seems difficult that something should be said relatively of one owing to a change in another without any change in itself; for nothing new comes to a thing without a change in it.
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> Therefore we must say that if anyone by a change in himself becomes equal to me without a change in me,

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[23] *In I Sent.*, d. 9, exp. text.; *In III Sent.*, d. 2, 2. 2 sol. 3; *In IV Sent., d.* 1, 1. 4 sol. 2; *CG*, III, 62; *De Pot.*, 7. 8 ad 5; *In XI Meta.*, 12. 2385; *In V Phys.*, 3. He explicitly states that this applies only to new relations; eternal relations do not follow on motion. Cf. *In I Sent.*, d. 33, 1. 3 ad 3.

[24] *In I Sent.*, d. 26, 2. 1; *In II Sent.*, d. 1, 1. 5 ad 8; *In III* Sent., d. 5, 1. 1 sol. 1; *In IV Sent.*, d. 41, 1, sol. 1 ad 3; *De Pot.*, 7. 8c and ad 5 and 6; *ST*, I, 13. 7c and ad 2.

> that equality was first in me in some way, as in its root [*in sua radice*], from which it has its real *esse:* for from the fact that I have such a quantity, I am competent to be equal to all who have the same quantity [*ex hoc enim quod habeo talem quantitatem, competit mihi quod sim aequalis omnibus illis qui eamdem quantitatem habent*]. When therefore someone newly acquires that quantity, that common root of equality [*ista communis radix aequalitatis*] is determined to him and nothing new comes to me from the fact that I begin to be equal to another through a change in him.[25]

Several points are to be noted in this passage. First, granted the existence of the subject with the foundation of relation (in this case quantity), the subject acquires a new relation without intrinsic addition or change. Secondly, before there is an actual relation, the subject by its foundation has an indeterminate and virtual relativity. This is the root and *esse* of the relation; by the possession of this quantity I am *capable* of being equal to all who have the same quantity. Thirdly, the actual relation arises when there is a term which determines this indeterminate relativity of the root. Finally, the real *esse* of relation, and hence its reality as an inherent accident,[26] derives from the root and is entirely independent of the term in its being.

To put this in other words: (1) We may distinguish three *rationes:* (*a*) quantity as an absolute accident, the intrinsic measure of material substance, which is the absolute foundation of relation; (*b*) a virtual relativity flowing from this absolute, quantity as extrinsic measure; and (*c*) a relation in act and in its complete *ratio* when this quantity is serving as a measure or being measured by a definite extrinsic term. (2) But only one physical form, the inherent accident of quantity, is the source of the two *rationes* (*a*) and (*b*), and the source in its subject for the *ratio* (*c*), which also includes the correlative.

Here we may well recall two other texts in which St. Thomas places relation and action in contrast to quantity and quality. The latter, he says, are accidents which in their being and *ratio* remain in their subject, *manens in subjecto.* But the former by their *ratio* signify rather a *transitus* or procession to another by which they somehow stand outside their subject. Since the *ratio* is made only by that *transitus,* it involves no new composition with its own subject nor any change in it. Likewise the mere removal of the external term brings about the cessation of these accidents *in act,* but they remain in their *cause* from which they have their real *esse.* But as accidents, that is, in that very *esse*

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[25] *In V Phys.,* 3.
[26] *In I Sent.,* d. 8, 4. 3; d. 26, 2. 1; *ST,* I, 28. 2.

which is their cause, both action and relation are in and composed with their subject, and are real beings.[27]

Returning to the example used in the *Commentary on the Physics,* we ask which elements belong to the relation as a relation and which belong to it as an accident. Quantity as an absolute is *manens in subjecto* and hence extrinsic to the *ratio* of relation. But the second mode of being flowing from this same form, its competence as a measure, is certainly included in the *ratio* of relation. It is precisely by this that relation opposes, distinguishes, and forms a unity with the correlative. Both of these elements belong to relation as an intrinsic accident, for the relative mode of being could not be in the subject unless it derived from a form which was first an internal perfection of the subject. And both of these may remain when the term ceases and the relation ceases in act.

However, it is immediately by that virtual relativity of the form that relation is inherent in the subject (*esse in*), and by it alone the subject has the real *respectus* or openness to other things by which it is said to be *ad aliud* (*esse ad*).[28] This relativity, then, is the central point for understanding real relations, and as we progress we shall see that the other foundations of relation have the same character.

THE MULTIPLICATION OF RELATIONS

Since the passage we have been considering deals immediately with only one type of relation, we may seem to be straining the text. Therefore we will consider briefly another series of parallel texts in which St. Thomas is attempting to answer the theological question of whether there are two filiations in Christ, the human and the divine.[29] Since filiation is a relation, he had to consider here the numerical distinction and multiplication of relations.

The basis of his solution is that since relation has its real being from its cause, and since being and unity are convertible, it must also have its unity from its cause. He then makes three points regarding the discernment of multiplicity in relations. First, the primary cause of the individuation of accidents is their substantive subject. Hence relations in different subjects are numerically distinct. Secondly, since the

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[27] *De Pot.*, 7. 8; 7. 9 ad 7.

[28] Billot gives a salutary warning against considering the *esse in* and *esse ad* of real relation as having the proportion of potency to act or as being a physical or logical composition; they are inadequate concepts of one simple being whose adequate concept includes both, since it is real from the *esse in* and is a relation from the *esse ad*. *De Deo Uno et Trino* (ed. quinta; Pratti, 1910), p. 384.

[29] *In III Sent.*, d. 8, 1. 5; *Quodlibet. IX*, a. 4c and ad 2; *Quodlibet. I*, a. 2; *ST*, III, 35. 5c and ad 3.

immediate cause of relation is another accident, its foundation, relations based on different foundations in the same subject will be distinct. Finally, the unity or plurality of relations in one subject is never to be judged by the number of terms to which that subject is related. By one quantity, he says, I am equal to all those who have the same quantity. In me there is only one real relation of equality, but this one relation has many "respects" which are determined solely by the external terms and add nothing to the subject.

But in the relations based on action-passion there is greater complexity and need for more careful distinctions. One passion may result from two or more complementary actions which differ in species or in subject. Passively, for instance, there is only one generation which is *in generato;* but there are two active generations from two agents, father and mother. Hence in the son there is but one real relation of filiation, founded on the one cause, although it has two terms. But in active generation there are two subjects, two causes, and so two real relations, although both have the same term.

On the other hand, many patients may be related to one agent whose action in regard to them is either one numerically or one in species. Owing to the distinction of subjects, there are, of course, distinct relations in the patients. But in either instance there is only one real relation in the agent although it has many terms. A father, for example, may have many sons as a result of numerically distinct actions which, however, are one in species. Since many forms of the same species cannot be in one subject, the father has only one real relation of paternity which has many terms.[30]

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[30] As other examples he mentions a ruler who rules many subjects by one power and authority and a teacher who teaches many pupils the same subject (if the subjects are different, the relations will be multiplied because they proceed from a *habitus* different in species).

In these parallel texts the only variation is with regard to enduring relations founded on past actions. In the commentary on the *Sentences* he explains this by something—a right, power, habit—left in the agent by the action. In the *Summa* (the point does not arise in the other places) there is no question of anything's being left by the action except the relation itself. This last position will be explained more fully when we consider the nature of action and passion. We may remark here that in the *Sentences* St. Thomas's position on action is not entirely clear because it is undeveloped; particularly he did not clearly bring out the point which is so often mentioned in the *De Potentia*—that the agent in passing from rest to activity does not change; that is, that the agent as agent and per se acquires nothing intrinsic to itself by the positing of the effect. In the *Sentences* he was rather looking to something which later he would call *per accidens.* For instance, when a man becomes a father he acquires certain responsibilities, rights, and powers; but these are themselves relations either identical with the relation of fatherhood or other relations deriving from it. He may also undergo psychological and moral changes, take on new habits

From these texts we may draw some conclusions about St. Thomas's view of relations. First, we see that the whole inherent reality of relation is present in the subject with its foundation, whether or not there is an actual term to which it is now related. The one form provides the *esse in* and the *esse ad* which render the subject relative and found the possibility of a real relation. But there is yet no actual relation; for the *esse ad,* the *ratio* or nature of relation, demands the actual *transitus* to a definite term with a proportionate foundation. The term, however, neither adds nor detracts from the intrinsic being of the subject. Secondly, the multiplication of terms does not multiply that reality in the subject which makes the relation real so long as the foundation remains specifically the same. There is no such thing as an internal multiplication, much less an infinity, of relative entities.[31] A man may be quantitatively equal to one or a million men, but the real *esse* of relation in him is just one.

Finally, there is the position that one form is the source of two modes of being. Regarding quantity this is already clear. The absolute mode is in and of the subject, dedicated to its intrinsic perfection; the relative mode is in but not of the subject—it is of that to which it tends and in which it terminates. However, before discussing the how and why of this we must clarify some points regarding the other foundations.

THE MEANING OF ACTION AND PASSION

Action and passion may be brief, yet, in some instances, the relation which follows upon them seems to endure. Is the real foundation of the

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and dispositions; but these are not the foundation of the relation of fatherhood, but changes brought about by the conscious realization of his new relation. A man is not a father because he has certain rights, dispositions, and so on; he has these because he is a father. Yet we may say that, in the total unity of the subject, these habits constitute a flowering and strengthening of the first relation.

[31] The *rationes* are multiplied in the fullness in which they are grasped and completed by the intellect—and they are formally only in the intellect. For in this logical classification of relations the term has its part. Thus the essential differences depend only on the foundation; the relation is either quantitative or operative. But the real quantitative relation in the subject, for instance, may give rise to many relations in their logical formalities which depend on the proportion of the term to the subject. St. Thomas says explicitly only this, that by one quantity I am capable of being equal to all with the same quantity; but it is by the same quantity that I am also unequal, larger, smaller, double, half, and so on, depending on the term which completes the *ratio.*

This illustrates another point which should already be clear from what was said earlier of the *ratio* of relation: relation formally and immediately terminates in a correlative, not in the subject or foundation of the correlative. It is, of course, the subjects which are related by the relations. Thus, the correlative and terminus of double is not 2 but half; 4 is related to 2 as double to half. Cajetan aptly remarks that if a relative terminated in an absolute, God would enter into the definition of a created being (*In I Summae Theologicae,* 13. 7).

relation, then, something which is left by them or something that precedes them? Answering this question will also answer another, how substance and quality can be *per accidens* foundations of relation in so far as they have the *ratio* of action or passion. A complete analysis of action and passion is not intended here, but we must see at least what the terms signify.

St. Thomas says that action and passion are objectively identified with the motion in the patient. Motion considered as *from* the agent is action; motion considered as *in* the patient is passion. However, action and passion do not signify motion itself. Motion is simply an imperfect act which reason views as a medium between two terms in a patient, one term being potency and the other act with regard to any particular motion. To bring the potential to act, an efficient cause is required; and it is precisely these notions of cause and effect which action and passion signify.[32]

Hence St. Thomas says that even where there is causality without motion, there is action and passion, for there is influence of cause on effect. For instance, because substance is indivisible (a thing may be more or less white, but not more or less man), substantial generation is instantaneous and does not involve that successive passage between terms which is motion in its strictest sense. Even in the purest type of transitive action, creation, which presupposes neither matter nor motion but only the actuality of the agent, there is action and passion.[33]

What happens, then, when an agent brings about an effect, with or without motion? In its widest sense, to act is to communicate; the agent communicates something of its actuality to the patient.[34] This is not to be understood as a transfer. Neither a substantial nor an accidental form of the agent passes physically to the patient; the agent does not lose something when it acts.[35] Rather the agent produces its like, either by reducing the potential in a pre-existing patient to act or by creation. The likeness will be there because the efficacy of a cause

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John of St. Thomas also has a good discussion of this point (*Ars. Logica,* II, 17. 5 [ed. Reiser, I, 584]).

[32] *In III Phys.,* 5; *In V Phys.,* 2 and 3; *In XI Meta.,* 9. 2312-13; *CG,* II, 57; *In I de Anima,* 6. 726; *ST.* I, 28, 3 ad 1; 41. 1 ad 2; I-II, 110. 2.

[33] On this matter and various applications, cf. *In VIII Phys.,* 2 (where he answers Aristotle's contention for the necessity of eternal motion); *In VII Meta.,* 7. 1417 ff.; *De Ver.,* 26. 1; *De Pot.,* 3. 2, 3, and 4; *Quodlibet. I,* a. 6; *Quodlibet. VII,* a. 9; *ST,* I, 45. 1-4; I-II, 113. 7.

On motion in substance cf. also Aristotle *Physics* v. 1. 225a 1 ff., and, on this, Francis X. Meehan, *Efficient Causality in Aristotle and St. Thomas* (Washington, D.C.: Catholic University of America Press, 1940), pp. 45 ff.

[34] *De Pot.,* 2. 1: "Agere vero nihil aliud est quam communicare illud per quod agens est actu, secundum quod est possibile."

[35] *Ibid.,* 3. 7; *CG,* III. 69 #9; *ST,* I, 115. 1, "Tertia vero . . ."

reaches as far as its actuality; it can cause what it is. What is man can cause man; what is hot can cause heat. God is being and can cause being; and since he causes being, his activity presupposes no passive potentiality in some subject, but only his active potency which is his being.[36]

Now we may reconcile some disconcerting statements which St. Thomas makes about action. At one time he says that action is in the patient.[37] Here he is pointing to its physical identification with the motion which is in the patient. Then he says that it is something proceeding from agent to patient.[38] Here he is pointing to the notion of causality implied in motion or the effect; it is something *from* a cause which is a being in act. This *transitus* from cause to effect is also that which completes the *ratio* of action. Finally he says that it is in the agent.[39] Here he is pointing to that form or act in the agent which is its principle of causality, *quo agens agit,* not as a form or act but as a cause in relation to its effect. This is the basis for his position, which we have seen in the scheme of the categories, that action is partially in the subject. This is also the basis of his position that action as action, according to its *ratio,* makes no composition with its subject. The *transitus* which completes its nature neither adds to nor detracts from the subject; action ceases with the cessation of the term, but the agent does not change.[40] Likewise the agent in passing from the state of inactivity to that of activity does not change per se.[41]

Next we note the most important point of the mediation of operation by accidental forms. Substance is the primary source of operation; but, in creatures, operation does not proceed from substance except through accidental forms which are active or passive powers. Only when the operation of a thing is its *esse,* is the essence or substantial form the immediate principle of operation; and this is true only of God.[42]

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[36] *Quaestio de Anima,* a. 12; *De Pot.,* 1. 3; 3. 7 ad 10; 3. 8; *ST,* I, 25. 2; 42. 6; 44. 1 and 2; 45. 2, 5, and 8; 65. 4; I-II, 63. 1.

The exclusion of previous potency outside God for creation refers not only to matter but also to essences or possibles, since God is also the source of these (*De Pot.,* 3. 5 ad 2; *ST,* I, 9. 2). Cf., Gerard Smith, "Avicenna and the Possibles," *New Scholasticism,* XVII (October, 1943), 340-57.

[37] Cf. references in n. 32 above.

[38] *De Pot.,* 7. 8.

[39] *Ibid.,* 8. 2. Meehan (*op. cit.,* p. 224, n. 87) attempts to explain how action is in both agent and patient by the fact that at the moment of action the two are in contact. This is true but inadequate; it gives at best a local explanation of *in.* This contact does not make agent and patient one substantive subject in which one accident may inhere.

[40] *De Pot.,* 7. 8; 7. 9 ad 7.

[41] *Ibid.,* 7. 8: ". . . non est motus secundum actionem nisi metaphorice et improprie; sicut exiens de otio in actum mutari dicimus . . . "

[42] *In I Sent.,* d. 3, 4. 2; *Quaest. de An.,* a. 12; *Quodlibet. X,* a. 5; *De Spir. Creat.,* a. 11; *ST,* I, 45. 8 ad 2; 77. 1; 79. 1; 115. 1 ad 5. St. Thomas presents

These points yield an interpretation of what St. Thomas means by *actio media.* This may signify either the *ratio* of action considered as a medium between agent and patient or the accidental form which is the immediate principle of operation and thus stands between the substantial form and the motion or effect in the patient. The latter idea is more frequent, at least in the later writing, but is discovered more under the term *accidens medium* than *actio media.*[43]

Now, both substantial form, which is the first principle of operation, and the accidents which mediate the operation are first of all internal

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his argument in many ways. Perhaps the best series of metaphysical arguments is given in the question on the angels, *ST,* I, 54. 1, 2, and 3.

It should be noted that in material beings quantity is also a necessary mediator of transitive actions; the *contactus quantitatis* must precede the *contactus virtutis.* Cf. *In IV Sent.,* d. 10, 1. 4 sol. 1; *CG,* II, 56; III, 69; *De Ver.,* 8. 14 ad 2 in contrarium; 28. 3; *De Pot.,* 3. 7; *ST,* I, 115. 1 ad 3; *In Librum de Divinis Nominibus,* IV, 8.

[43] *De Pot.,* 2. 1 ad 6: ". . . omne illud quod est principium actionis, ut quo agitur, habet potentiae rationem; sive sit essentia sive aliquod accidens medium, puta qualitas quaedam inter essentiam et actionem. In creaturis tamen corporalibus vel vix vel numquam invenitur aliqua actio alicujus naturae substantialis nisi mediante aliquo accidente . . ."

Cf. also *ibid.,* 3. 3; 3. 17 ad 12; *ST,* I, 45. 3 ad 2; 54. 1 ad 3. In the commentary on the *Sentences* there are many passages on this matter, but St. Thomas's thought is not clear on the meaning of action and *actio media.* It appears that he was not yet free from all the trappings of Avicennian metaphysics and cosmogony, in which various media played a large part in the descent of being. *In I Sent.,* d. 8, 4. 3 ad 3; d. 7, 1. 2. Cf. *In I Sent.,* d. 2, 1. 2 ad 2; d. 3, 4. 2; d. 7, 1. 2; d. 8, 4. 3 ad 3; d. 32, 1. 1; d. 35, 1. 5 ad 3; d. 37, 1. 1 ad 4; d. 40, 1. 1 ad 1; *In II Sent.,* d. 1, 1. 5 ad 11; d. 15, 3. 1 ad 3; d. 40, 1. 4 ad 1.

The lesser prominence of the *actio media* in the later writings seems to be connected with St. Thomas's firmer development of the thesis that the agent as agent does not change per se in passing from rest to action or operation. Compare, for instance, his answers to the arguments that the noneternity of the world would imply a change in God. In *In II Sent.,* d. 1, 1. 5 ad 11, and in the first two arguments of *CG,* II, 35, he argues that if a voluntary agent acts by an *actio media,* the new action brings about a change in the agent as passing from rest to act; but God acts without *actio media,* and hence creation would bring about no change in him. In *De Pot.,* 3. 17 ad 12, he says simply that God does not act by a new action; it is called new from the novelty of the effect. In *ST,* I, 46. 1 ad 6-10, where *actio media* might occur, it does not. The emphasis has shifted to the difference between an agent which presupposes matter and acts in time and an agent who presupposes nothing and does not act in time but produces the whole being and time with it. It would make no difference whether an agent acts by essence or by *actio media*; as agent it does not change. But an agent which acts in time and therefore with motion and presupposing a subject on which it acts, does change *per accidens*; there must at least be a previous motion or change to bring the agent and patient into the proper dispositions for causal contact. This brings us back to Aristotle's argument for the eternity of motion and the universe. On this subject cf. Bernard Lonergan, "St. Thomas's Theory of Operation," *Theological Studies,* III (September, 1942), 375-83.

determinants of the absolute being of their subjects. For these accidents are qualities; and, like substantial form, they primarily actuate their subject in some degree of perfection. Like quantity, then, they are forms which are sources of two modes of being. The accidents as qualities are in and of the subject, but as operative powers they are not of the subject but of that on which they operate or in which their operation terminates. In short, they possess the same virtual relativity, the real *esse* of relation, which we have considered in quantity.

St. Thomas has various ways of indicating this double function or act of forms, depending on the matter he is treating. The first or absolute function is called *informatio* or, in general, the actuation of the subject. This is what is properly denoted by the word "form," because it signifies the formal cause. The second function is operation or some "extension" of the subject to something outside itself. He says, for instance, that knowledge as an accidental quality is something in and of the mind; but as relation it is of the knowable and "exceeds" the mind which is its subject. Likewise, heat as an accidental form, a quality, is *manens in subjecto*; but as the immediate principle of the operation of heating it is of that which it heats—it is relative.[44]

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[44] *De Ver.*, 2. 14: ". . . scientia inquantum scientia non dicit causam activam, sicut nec forma inquantum est forma; actio enim est ut in exeundo aliquid ab agente; sed forma inquantum hujusmodi habet esse in perficiendo illud in quo est, et quiescendo in ipso; et ideo forma non est principium agendi nisi mediante virtute; et in quibusdam quidem ipsa forma est virtus, sed non secundum rationem formae; in quibusdam autem virtus est aliud a forma substantiali rei, sicut videmus in omnibus corporalibus, a quibus non progrediuntur actiones nisi mediantibus aliquibus suis qualitatibus."

Ibid., 27. 3 ad 25: ". . . duplex est actus formae: unus qui est operatio; ut calefacere, qui est actus secundus . . . Alius vero actus formae est materiae informatio, quae est actus primus; sicut vivificare corpus est actus animae . . ." Cf. *ibid.*, 3. 2 ad 5; 3. 3.

Quodlibet. VII, a. 4: ". . . dupliciter potest considerari [notitia]: vel secundum quod comparatur ad cognoscentem; et sic inest cognoscenti sicut accidens in subjecto, et sic non excedit subjectum, quia numquam invenitur inesse alicui nisi menti: vel secundum quod comparatur ad cognoscibile; et ex hac parte non habet quod insit, sed quod ad aliud sit. Illud autem quod ad aliquid dicitur, non habet rationem accidentis ex hoc quod est ad aliquid, sed solum ex hoc quod inest; . . . et propter hoc notitia secundum considerationem istam non est in anima sicut in subjecto, et secundum hanc comparationem excedit mentem inquantum alia a mente per notitiam cognoscuntur."

ST, I, 14. 8: ". . . considerandum est quod forma naturalis, inquantum est forma manens in eo cui dat esse, non nominat principium actionis; sed secundum quod habet inclinationem ad effectum . . ."

ST, I-II, 26. 2: "Agens autem naturale duplicem effectum inducit in patiens: nam primo quidem dat formam, secundo dat motum consequentem formam . . ."

ST, I-II, 111. 2: Sic est duplex gratiae effectus, sicut et cuiuslibet alterius formae: quorum primus est esse, secundus est operatio; sicut caloris operatio est facere calidum, et exterior calefactio."

Thus both substance and quality as principles of action have the *ratio* of action. For the same reason they possess the virtual relativity which founds the real *esse* of relation. But, as we have seen, the actual relation in its complete *ratio* requires the determination of that virtual relativity to a definite term. Now this determination takes place differently with these powers from the way it does with quantity. The very presence of two quantified objects in the same universe is all that is required for the reality of the relation between them. The mind merely takes their mutual measure and completes the *ratio* of relation in its proper species of equality, inequality, and so on. Distance makes no difference; I can measure a lake in India by a lake in America because they are already measurable by one another, and mind merely renders measure formal.[45] But operative powers are different. There may be a million baseball bats and a million baseballs in the United States; each one of each class is potentially related to each one of the other class as agent and patient. But this bat is not actually related to this ball until it hits this ball. You may have a steak in the ice box and a fire in the kitchen stove; but there is no operative relation between them until the fire is cooking the steak. In short, these powers depend for their determination and the actualization of their relativity on the actual exercise of the powers. As Aristotle remarks, numerical relations have no actualization in this sense.[46]

These are all applications of the general principle "quamlibet formam sequitur aliqua inclinatio" (*ST*, I, 80. 1). The reasons for this, which are also the ultimate reasons for relations, we hope to discuss later.

[45] What we may call the aesthetic aspect of quantitative relations is itself matter for a special treatise. For, in fact, these quantified objects are already congruous, proportioned, measured—not by the human mind but by the divine intellect, which also established the material universe in weight, measure, and number.

[46] *Metaphysics* v. 15. 1021a 18. St. Thomas, following Aristotle, does say that the relations of action and passion are founded either on the actual exercise or on the past or future exercise of the powers (*In IV Sent.*, d. 41, 1. 1 sol. 2; *In V Meta.*, 17. 1023-25). But it is noticeable that in the commentary on the *Physics* (III, 1) where he is explicitly treating relation as a genus of being, and therefore as real, he uses Aristotle's example of the thing heating to that being heated as a relation founded on the exercise of powers; but he does not use Aristotle's example of that which can heat to that which can be heated as a relation founded on the aptitude for motion. For, as he states elsewhere (*ST*, I, 13. 7 ad 1), the latter *mobile-motum* relation is a relation *secundum dici*, that is, it does not itself name a real relation, but signifies the foundations with their virtual relativity on which a real relation may follow. The actual relations arise only through the acquisition of motion in the thing moved (*In II Sent.*, d. 1, 1. 5 ad 8). His example is the relation of dominion, that is, the master-servant, ruler-ruled relation, and this is the only example he ever gives of a real relation founded on the power to move. The reason is that this power is already determined to definite subjects; a ruler is not the ruler of anyone, but of these particular subjects. The power to move the subjects according to his will is itself

Hence when motion has ceased and whenever there is causality without motion, nothing is left in the agent and patient except the relations of action and passion—that is, the active power of the agent as determined to that which it has effected in the patient and the similitude of that power generated in the agent determined by its source in the agent.[47] These respective forms are therefore the source of the permanence of the relations and in this sense foundations of relation. But the cause of the actuality of the relation is the actual exercise of causality in which the terms are simultaneously determined to one another.

QUANTITY AND NUMBER

We have yet to see how substance and quality can have the *ratio* of quantity. What is the foundation of those relations designated as one in substance or quality, examples of numerical relations given by Aristotle and often repeated by St. Thomas?

There is, of course, that unity in concept of things which are in the same species or have the same quality.[48] This is the basis of a real relation of knower to known and of those relations of reason such as predicability, universality, genus, and so on, which constitute logical classification. It is also the basis of classification in the nonmathematical empirical sciences which schematize their subjects according to the extension of their various substantial or accidental attributes.

But St. Thomas contrasts the relation of simple identity, which is a relation of reason, with the relations of specific or generic identity.[49] He seems to indicate also a real relation between the things thus known. It seems that such a relation may have two distinct foundations, depending on the view we take of these things. The first is quantity and is connected with St. Thomas's theory of the principle of individuation. Things which are one in species are also numerically distinct, and the basis of numerical distinction is quantity.

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a relation, not the foundation. The absolute foundation is in the wealth of qualities and in some previous action by which his authority was acquired and determined. Cf. *In I Sent.*, d. 2, exp. text.; *In Lib. de Div. Nom.*, XII, 1. On the acquisition of political power, cf. *In II Sent.*, d. 44, 2. 2; *ST*, II-II, 10. 10; 104. 6.

This merely illustrates the principle that cause and effect, like all correlatives, must be simultaneous; cf. *ST*, I, 13. 7 ad 6; 43. 2 ad 2; *De Pot.*, 3. 17 ad 21 and 26. This is derived from the analysis of motion (*In III Phys.*, 2, 3, and 4); it is basic to the proof that there cannot be an infinite series of per se causes (*CG*, I, 13), and that creatures require conservation by God (*ST*, I, 104. 1).

[47] Cf. *De Pot.*, 3. 3; *ST*, I, 45. 2 ad 2; 45. 3.

[48] *In X Meta.*, 1. 1930: "Specie autem unum, est indivisibile, quod est unum secundum scientiam et notitiam. Non enim in diversis singularibus est aliqua natura una numero quae possit dici species."

[49] *In V Meta.*, 11. 912; *ST*, I, 28. 1 ad 2.

To understand this we must recall St. Thomas's distinction between formal and material unity and division. Transcendental unity, which is convertible with being, signifies simply the undivided being without addition; but to the understanding of being it adds the negation of division, a being of reason. Transcendental multitude, which derives from formal division, also adds nothing to the beings designated as many; but it adds two negations to the understanding of them—the indivision of each and its division from, or nonidentity with, the others. On the other hand, the categorical unity of number does signify something added to the substantial unity and being of the thing, namely, the accident of quantity. Likewise the numerical multitude constituted by the repetition of this unit signifies the same accidental addition to the many.[50]

Number, then, is dependent on quantity, but quantity is not number. Number adds to quantity the character of a measure (*ratio mensurae*). This addition is not the physical addition of anything to the quantified being. This is simply that second aspect of quantity which we have already considered; measure is the external or relative aspect of the quantitative form. When this quantity is actually employed as a measure, it becomes 1, the unit of measure and the principle of number; the things measured as repetitions of this unity constitute number. Hence, St. Thomas says, number results from the division of the *continuum,* and the *divisa* are the material numbers, the *numeri numerati* (2 men, 3 men). But number formally and in its complete *ratio,* the *numeri numerantes* (2, 3), is in the intellect employing the measure.[51] Hence Aristotle had attributed the first class of relations to number rather than quantity because measure in continuous quantities is derived from number. But their real foundation is quantity, which is even shown by the fact that not all quantitative relations can be reduced to number because they are incommensurable.[52]

Now if things are one in species, there is a formal equivalence between them; their multiplicity is not due to formal distinction or opposition; they are not individuated by their essences or forms. Neither are they individuated by that common matter which is included in their essence. What renders a thing individual or distinct from other members of the same species or genus is *this* matter; and this matter is matter determined by dimensions, or quantified matter. Matter and quantity

[50] *De Pot.,* 9. 7c and ad 3 and 11; 3. 16 ad 3; *In III Meta.,* 12. 501; 13. 514; *In X Meta.,* 3. 1961 ff.; *In I Sent.,* d. 24, 1. 3; *Quodlibet. I,* a. 10; *ST,* I, 3. 3; 11. 1 ad 1 and 2.

[51] *In I Sent.,* d. 19, 2. 1; d. 24, 1. 1 ad 3, 4, and 5; *De Pot.,* 9. 5 ad 6; 9. 7 ad 11; *In V Meta.,* 8. 872 ff.; *In X Meta,* 2. 1939 ff.; *ST,* I, 30. 1 ad 4; 30. 2 ad 5.

[52] *In V Meta.,* 17. 1007 and 1020.

together are coprinciples of the individuation which makes possible a multitude within a species.[53]

Thus to say that things are one in species is also to say that they are numerically distinct, although in each instance we are looking at different realities in the same thing. First, we look to the formal equivalence which is the basis of unity in knowledge and an identity in essence. Next, we look to the material division which keeps this unity from being a simple identity and is the basis of plurality in existence. But the reason why the relation between these things is real is that the accident of quantity renders them measurable by one another through making possible both the distinction and the unity without identity in being. This is confirmed by St. Thomas's position on multitude in the angels and in the Trinity. Since they are immaterial and unquantified, their distinction is purely formal. Therefore, they have neither identity in species nor numerical multiplicity; they constitute only a transcendental multitude and their "otherness" is not real relation but simply a negation, a being of reason, which is added to the understanding of this multitude. Real relations among them are only in the operative order.[54]

With slight changes the same points may be applied to the relations of qualitative identity or similitude. Qualities are individuated by their subjects, and like them derive their numerical distinction from quantity. And since sensible qualities, at least, inhere in substance by the mediation of quantity, they are doubly dependent on it for their individuation.[55] Even the action-passion relations, of which these qualities as operative powers are the source, can be described and understood in quantitative terms of greater or less according to the intensity of their operation. But such metaphorical use of quantity, of course, really indicates the operative relation itself.

SIMILITUDE AND CAUSAL COMMUNICATION

Finally, there is an even more significant interpretation of these relations of specific or qualitative unity and similitude. In speaking of the

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[53] *In Boet. de Trin.*, 4. 2. On the question of individuation cf. Roland-Gosselin, *Le De Ente et Essentia de s. Thomas d'Aquin* (Kain: Le Saulchoir, 1926), pp. 104 ff.

[54] *ST*, I, 50. 3 and 4; *CG*, II, 93-95. In the *Commentary on the Sentences* (I, d. 19, 1. 1) St. Thomas says that some species of quantity can be found in immaterial things; but in the *De Potentia* (9. 7) and in the *Summa* (I, 30. 3) he says that this attribution of quantity is only metaphorical. This metaphorical quantity is called virtual quantity and signifies either the intensive perfection of the form itself or its consequent efficacy in causation. Cf. *ST*, I, 42. 1 ad 1 and 2.

[55] *In IV Sent.*, d. 12, 1. 1 sol. 3; *In Boet. de Trin.*, 4. 3.

assimilation of knower to known, St. Thomas remarks that similarity between two things can be effected in only two ways. Either one thing is the cause of the other and has impressed its form on the effect, or both things derive from the same cause which has impressed the same form on both.[56] Thus similitude always points to a cause; for causality is the communication of its likeness by agent to patient *inquantum possibile*. The significance of this view becomes evident when we see it as the basis for the argument to a first cause of participated being. The similitude in being of things which are not being, their sharing in *esse*, which is described as *maxime formale omnium*, demands a cause outside these things.[57]

However, St. Thomas frequently points out that similitude between cause and effect is not always mutual. The effect is always similar to the cause, but unless the effect receives the form of the cause fully, that is, univocally, the cause is not similar to the effect. Since they are in different orders of being, there is not in each the same foundation for a relation.[58] As his source on this point he often refers to the Pseudo-Dionysius in his treatise *On the Divine Names*. To understand the meaning attached to it we need only quote St. Thomas's commentary on the source:

> He [Dionysius] says that according to the theologians God, who exists above all, considered in his *esse* is similar to no other; but they say that he gives his likeness to things, which "are turned" [*convertuntur*], that is, approach to him by a kind of imitation in so far as possible according to their power; not that they can perfectly imitate him. . . . And the force [*virtus*] of this similitude to God, which is given to things by him, appears in this, that all things that come from God as effect from cause are turned by desire to him as to their proper cause; and this would not be unless all had some likeness to God; for everything loves and desires what is like it. Since, therefore, all things are turned to God by desire, it is proper to say that all are similar to God, not by equality, but by a certain imitation and privation from which we draw the notion of image.
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> That the similitude of things to God is of this kind is evident from the fact that we do not say that God is similar to other things, just as we do not say that a man is like his image. For of things that are in one order, it

[56] *De Ver.*, 2. 14; 8. 8.

[57] *CG*, II, 15; *De Pot.*, 3. 5; *ST*, I, 44. 1 and 2; II-II, 26. 2 ad 2; *In Lib. de Div. Nom.*, V, 1; *In Librum de Causis*, 3.

For *esse* as *maxime formale omnium*, cf. *ST*, I, 7. 1, which is to be interpreted by explanations in previous articles, especially in 4. 1 ad 3.

[58] *In I Sent.*, d. 19, 1. 2; *De Pot.*, 7. 10; *ST*, I, 4. 3.

> can be said that they are mutually like one another . . . for this reason, that things are called similar in so far as they participate in one form which pre-exists in a common cause, to which each of the *coordinata* has a similar relationship [*habitudinem*]. But between causes and things caused there should be no conversion of similitude . . . because the cause does not depend on the effect in such a way that it gives its similitude only to this one or that one; but the effect depends on the cause from which alone it shares the character of likeness. And this dependence is indicated when the effect is said to be in the cause. But when it is said that the *coordinata* are similar to one another, there is designated the dependence of each to the same cause [*dependentia utriusque ad unam causam*].[59]

Dependence and similitude, which at first sight might be taken as static relationships, are rather dynamic relations both in the order of efficient and of final causality. Because like desires like, the very desire of God reveals a prior analogical likeness in being. But this is not a static relationship; it is the active-passive relation involved in efficient causality and, therefore, in creation. Yet the efficacious force of this relationship lies in the conversion by desire and imitation of effect to cause; it is a *dependentia ad*. This desire and imitation is for the good, the final end, whose attainment is the perfection of a being. Moreover, since this end is reached only through operation, and since no creature operates by its essence but through accidental operative powers, the relation is immediately founded on, and actualized through, accidents.[60]

From this interpretation of the Platonic relationship of forms through exemplary and efficient causality, it is easy to pass to the Aristotelian view of the order of the universe as one of finality. The order of the parts to one another (*coordinata*) depends on the order of the whole to an extrinsic principle; in this order lies the good and perfection of things.[61]

The conclusions from a study of these texts seem clear. First, in the mind of St. Thomas, the immediate foundations for relations in creatures are certain accidental forms in the subject. Secondly, each of these forms has a twofold function. It is an absolute perfection of its subject making it to be what it is in the order of intrinsic accidental act. It also carries the subject outside itself by a virtual relativity, attraction, or—perhaps best of all—a potentiality for communicating with

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[59] *In Lib. de Div. Nom.*, IX, 3.

[60] The relation of creation, which appears as a *dependence on* the efficient cause and in which the very substance of the creature seems to be the foundation, will be considered separately in a later article.

[61] *De Pot.*, 7. 9.

others in perfection. These are distinct and conceptually irreducible functions or modes of being, but they do not constitute two physical entities in the motion with which they are identified. Both derive from one physical form. Finally, this second aspect of form is intimately linked to the tendency of things to the good and perfection attained through operation. The root of relativity is ultimately in the finalization of created beings; they are not for themselves alone but for the universal order of harmonious co-operation by which all and each somehow attain the absolute good, the extrinsic end of the universe and each of its parts.

FINITUDE AND FRUSTRATION: CONSIDERATIONS ON BROD'S *KAFKA*

WALTER J. ONG, S.J.

A serious artist can on occasion be of at least clinical interest to the philosopher, so far as he manifests in an unusually immediate and urgent fashion reality as it is accessible in a particular milieu. This is the more true the better and more serious the artist is. It is eminently true in the case of Franz Kafka, whose writing has the fecund, symbolic character found in all great art.

Of Jewish extraction, Kafka, who lived against a Germano-Czech background and died in Prague in 1924 at the age of forty-one, left behind him a body of writing published posthumously for the most part and made up largely of enigmatic but unadorned and simple narratives. In their parable-like development, these narratives give evidence of an art that is more than "universal" in the sense in which this term is ordinarily understood. Kafka's art concerns itself in one way or another with being, with being at that level where statement becomes analogous and where to give voice to one truth is implicitly to express in some way an unlimited number of other truths as well. Kafka's art thus readily raises questions that lie at the very center of his existence, whence they tend to spread out in ever-widening circles to all reality.

The current ready acceptance of Kafka among highly active intellectual groups suggests that the way in which these questions are present to Kafka is extraordinarily symptomatic and that thoughtful men of today find them thoroughly representative of the questions that take shape at the centers of their own lives. Thus, even apart from his connection with such manifestly philosophic thought as that of Heidegger and Kierkegaard, Kafka is a figure of considerable interest to the philosopher who is attentive—as every philosopher must be—to the reality around him.

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The English translation of Max Brod's biography of Kafka [1] is a real acquisition from the philosophical point of view. Brod is able to draw on his close friendship with Kafka and on the great sympathy that genuine understanding demands, to do what a biographer of Kafka has to do: interpret Kafka's life in the most relevant and detailed terms at hand, those found in Kafka's works themselves. For, whereas it is quite true that a work of art has a certain autonomy—as something made it stands in a sense on its own, so that its author's personal history is only incidental to the work he creates—nevertheless, the life of an artist such as Kafka is so filled with his works that *they* can never be incidental to *it*.

Perhaps better than anyone else, Brod is aware of the great Kafkan sphinx: the spirit of frustration and kindly but uncompromising irony that thrusts itself from his life into his works. As Brod notes, frustration and irony are not for Kafka items of the sort that might figure in some horror story of Edgar Allan Poe's—specialized attitudes that can be made plausible for a particular purpose but that are felt nevertheless as something ornamental and adventitious to living. Kafkan frustration and irony are inexorable (Brod observes that Kafka's vision of disaster is disconcerting precisely because it is so unwilling on Kafka's part and because it is a vision forced on a man who is naturally lighthearted and playful): they are a component of existence as existence presents itself to us.

In Kafka there are no pits and pendulums. The Kafkan hero is involved not in stagy devices but in the intricacies of a perhaps strange but totally untheatrical situation. In *The Trial,* the hero is arrested—for what, he does not know. All his refining upon his understanding of his own situation brings not satisfaction but the very opposite: the issues only become more and more complicated because he is at a loss to know what he is trying to define. Attempts at understanding, instead of untangling matters, only horribly involve them by producing a greater accumulation of detail.

Similarly, in the more skillfully contrived narrative of *The Castle,* the hero spends his life attempting to get into contact with the officials of the Castle who oversee the village where he has come to work. But each interview supposedly scheduled with men apparently representing the Castle turns out to be an interview only with persons who can do no more than explain further and further the intricacies of protocol to be expected in one's dealing with Castle officials.

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[1] Max Brod, *Franz Kafka: A Biography,* trans. G. Humphrey Roberts (New York, Schocken Books). The quotations used in this article appear by permission of Schocken Books, Inc.

Frustration and irony, always akin in being each a kind of contradiction, are inextricably interwoven here in the essential ambiguity that defines the Kafkan hero's position. Plainly some irony is involved in his situation. The situation clearly cannot mean what it seems to mean—in *The Trial* the arrest of the hero, Joseph K., does not mean that he is guilty of any crime in the ordinary sense—hence it must mean some sort of opposite. The frustration makes itself felt immediately: it consists largely in suspecting the irony of the situation and being completely unable to catch the something else, to discover what could be the opposite, that the situation implies.

Kafkan symbolism involves this frustration and irony in everything. There can be no doubt that in stories such as *The Trial* and *The Castle*, it is not only his own personal life, but also what he discovered, as Brod points out, in "his own unhappy people, homeless, haunted Jewry" that is making itself felt within Kafka. But, Brod discerningly notes, this very Jewry is again more than itself. It is a symbol of the entire human race. "What's your name, then?" one of Kafka's characters is asked. "Odradek," he replies; and, Brod notes,[2] "a whole range of Slav words is set ringing, which all mean renegade, renegade from one's race, 'rod,' renegade from the council, 'rada,' the divine decision of the creation, 'rat.'" The last association is telling enough: being a renegade becomes the basic human situation, as indeed in a sense it is: by creation man is placed, as we say, outside his cause, to which he must return. "And your address?" the man is asked. "No fixed abode."

What Kafka sees he sees everywhere. Frustration is not only for himself as an individual torn between the desire to do nothing but write and the necessity of earning a living, nor only for himself as a Jew in the modern West. It is for Kafka as simply a human being. It is for all things. Brod himself suggests[3] the Catholic interpretation that adds also a supernatural dimension: the frustration traces to the weakness of the Jew who does not accept Christ. But here again, one might observe, all men in one way or another (at least by occasional sin) to some extent reject Christ, so that the figure of the Jew once more is projected as a symbol. His position is the most dramatic of all human positions here, for Christ was the greatest and most dynamic force and figure not only in all human history but especially in Jewish history—if the center of humanity, much more the center of Judaism. Judaism without its Christ is indeed humanity without its God.

It is not strange that Kafka, involved in these analogies, should have sensed frustration all around him as he worked at his job in the semi-

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[2] *Ibid.*, p. 135.
[3] *Ibid.*, p. 174.

governmental Workers' Accident Insurance Institute. Kafka could not blind himself, as many can, to the point of seeing here an impregnable stronghold against trouble. The suave and genteel composure at the surface of the insurance world was vulgar and not convincing. Poring over reports of accident cases, he sensed this world as the great depository of disaster in our day—the well (it is reassuringly plush-lined and made out to be so deep that no one ever need fear having to inspect the bottom) down which all that is uneven and askew and disconcerting in life can be tumbled into oblivion while a surface of complete order is preserved in terms of cash balances. Here, where the feeling is commonly fostered that tragedy is sublimated in monetary compensation, Kafka saw the same thing he saw elsewhere: frustration, discouraged not a whit by cash settlement. He writes to Brod both in fun and in all seriousness:

> In my four district headquarters—apart from all my other work—people fall, as if they were drunk, off scaffolds and into machines, all the planks tip up, there are landslides everywhere, all the ladders slip, everything one puts up falls down and what one puts down one falls over oneself.[4]

Others might be distracted by insurance payments and the *ersatz* sense of adjustment they engendered. Kafka remained acutely conscious of the frustration that alone made them necessary and to which they bore elaborate and permanent testimony.

The interests asserting themselves in his works thus make it inevitable that one formulate the probably central question of Kafka's entire life somewhat in this fashion: How far can the assertion of frustration be allowed to go? How far before one has denied all finality to life, denied the existence of God, and inflicted a mortal wound on one's own soul?

In admitting the fact of frustration, the Catholic will go a long way —a good deal further than most Catholics today will perhaps find themselves spontaneously admitting: in the last analysis, *everything* short of God himself involves man in frustration. Strangely enough, frustration is the nearly universal term of human activity. Frustration seems to be not an exception but the law. There is only one Being that man can concern himself with without finding himself involved in frustration; and, moreover, this Being that forms the sole exception to the law is, in a way, the most difficult of all beings to arrive at—to arrive at him requires the journey of a lifetime, no less.

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[4] *Ibid.*, p. 87.

All the beings readily accessible to man involve man in a dissatisfaction that, as he comes gradually to appreciate, is radically far more than the cloying of interest that sets in with time. Such cloying is only a superficial, if rhetorically telling, manifestation of something much worse—of a dissatisfaction that is quite automatic and inseparable from the very act of concerning oneself with any or all beings save only the One. The trouble is, as the Catholic will admit, that only the Transcendent offers possibilities.

All other things—other persons, the most perfect of scientific systems, all the knowledge possible to human beings (for these things are all created being)—these mean for man nothing but frustration, frustration delayed perhaps but inevitable. Even for man to turn and examine his own knowledge of God and say that it will satisfy him (this knowledge, too, is a created thing and is not God) will involve him in disaster. But the Catholic—who sometimes forgets this last point—will not admit that somewhere the frustration is not ended. Man is made for God: if he will bring himself to face more and more toward God (this requires effort and much random movement, experience, experimentation), at long last in God his activity will terminate.

What Kafka's ultimate attitude was here it would be difficult—perhaps would have been difficult even for Kafka—to say. And to attempt to decide the matter in any definitive sense is undoubtedly intrusion upon the domain of God, whose prerogative alone it is to judge man's soul. Still, in a biography the question cannot be entirely ignored. Brod asserts that Kafka's reaction to things "never precluded the possibility of final consolation," [5] and the verdict is not easy to dispute. Much of Kafka is plainly and explicitly religious; and statements such as "we are nihilistic thoughts that came into God's head" [6] admit an entirely valid interpretation: in all finite being there is an admixture of nonbeing.

Although his denial is somewhat enigmatic and requires explanation, Kafka does explicitly deny the kind of Manichaeanism that would regard the world as a sin of God's or as a creation of the Demiurge: "I believe we are not such a radical relapse of God's, only one of his bad moods. He has had a bad day." As it stands, this statement might, it is true, in the very act of foreswearing Manichaeanism merit the censure *male sonat*; still it is not at all beyond redemption, for in creating man God has permitted evil. God does not cause evil and he has a real divine magic that can draw good out of it, so that he can have reason to let evil come about; nevertheless, the fact remains, had

[5] *Ibid.*, p. 67.
[6] *Ibid.*, p. 75.

God not created, evil would not have been. Here is the "bad day," which is not, however, *radically* bad: this can be the same distinction as St. Thomas's (*Summa Theologica,* I, 49. 2) that God causes physical evil (not moral evil, however), only not per se but *quasi per accidens.* These two statements of Kafka's seem to be the only ones recorded by Brod that require some painstaking orientation.

Kafka's attitude toward God is of course a crucial point in his manipulation of the frustration theorem. It is of some moment to note that whatever his personal interior attitudes towards his Creator may have been, Kafka's writing and conversation as recorded by Brod are wanting in the intensely personalistic *I-Thou* relationship between God and the individual man that is entirely distinctive of both Old Testament and New Testament revelation ("*I* am the Lord *thy* God"; "*Thou* shalt not have strange gods before *me*"; "*I* have spoken to *you* from heaven"; and so on). It is as though Kafka were working with the fiction of the *Aufklärung*—and indeed, although Brod does not discuss the matter, it seems that he may have been influenced pro or con by the Jewish Hasidism of the *Aufklärung* period—when men imagined an explanation of reality conducted and completed with perfect satisfaction in terms of creaturely concepts.

The mirage of a closed philosophical "system" that M. Gilson and others have so rightly condemned is a relic of this kind of imagining; and subconscious acceptance of the mirage can generate immediate hostility to Kafka, who finds the mirage yielding such negative results. As proposed by some Catholics, the ideal of a closed philosophical system indeed attempts to reify the mirage envisioned by a cruder rationalism. It attempts to work God quite explicitly into the system, but this emended "system" remains a mirage nevertheless because its knowledge of God can never be more than a function of its knowledge of the world—what philosophy knows about God is what the world manifests about him and no more. Metaphysics, or for that matter theology, can be only a *relatively* satisfactory approach to being. Neither can be a "system" in the sense of a body of truths that is so self-contained and completely satisfying that if one could master the whole "system" he would simply have nothing further to ask—a system that does not raise questions it is powerless to answer itself. To project such a system is equivalently to deny God as the final end of man. Only God is such a being as this system would propose to be, a being whose explanation does not lie in some manner outside itself.

Kafka's assertion of frustration—and of a frustration in some sense ultimate—can be sustained so far as it asserts that when man approaches creation from creation's point of view, if he will only look

sharply enough and honestly enough, he will have to say that it makes no sense. There is nothing scandalous in this fact. Even our "ultimate principles" or our "eternal truths" will not put all reality into solution; they are after all ultimate only relatively and eternal *secundum quid*. There is one ultimate and one eternal Being, and this Being is not an abstract principle (which is a *judgment,* a poor, two-membered, bisected hold on truth that an angelic intellect, for one, finds quite unserviceable as it gazes inexpressibly deeper into reality than we do). This Being is God. God is the ultimate and full explanation, the intelligibility, of everything; but what we know about God from reason, and even from revelation, is not sufficient to make this explanation fully available to us as yet.

Thus there can be no doubt that Kafka, in asserting the fact of quite pervasive frustration for man, is turning in an essentially accurate report of what the world presents from the point of view he adopts, which is the point of view of a man devising an explanation in terms of created being, or of knowledge, even knowledge of God, derived from created being—the point of view of a man attempting an explanation, that is, in terms gathered solely from this life.

Here is where, in Kafka's life and in all men's lives, the matter of personality and a personal God becomes all-important. For man's only hope of escaping from this insufficiency turns on his being a person. Man's intellectual gaze falls more directly on certain created beings than it does on God. But the personality that he enjoys involves in its very intellectuality the power of reflex activity. Man can return upon himself and, seeing the unsatisfactory condition of his own being when it is in possession of created being, even were this *all* of created being, can see the necessity of concerning himself with God, even though God be very imperfectly and indirectly grasped by the intellect.

Yet if God were not himself personal, if God did not have the perfection of this reflexive activity within himself, the very manner in which man must escape from his own insufficiency would be without relation to God, without cause, an illusion. Thus all would be lost. The human intellect would have to save itself through reflection, and yet this act of reflection would have nothing whatsoever to do with God. To say there is no question of *me* and *thee* between man and God or of *me* and *thee* between God and man is implicitly to make frustration the goal of all man's actions.

Concerning Kafka's final attitude toward the matter of a personal God, we have no full answer because we do not know the outcome of the workings of grace in his soul. The remark quoted by Brod[7] is

[7] *Ibid.*, p. 172.

ambiguous: "One of the forms in which this concealment [of a man's faith in something indestructible in himself] may be expressed is the belief in a personal God." Here Kafka does not precisely condemn or belittle such belief but only says that it may sometimes supply for something else. Moreover, Brod indicates [8] that the theorems of freedom and hope are infrequent but unmistakable in Kafka and are indeed the *most characteristic* feature of his thought; Brod likewise discerningly observes that, since in all his preoccupation with frustration Kafka does not comfort *himself* but allows the burden of blame, whatever this may turn out to be, to rest on his own shoulders, he sees ultimately "no heteronymy between God and man but only indistinctness, an admittedly almost desperate complication." [9]

Seen in terms of the issues raised in his writings, Kafka's life is felt as permeated with the question of his direct relationship with a personal God for the very reason that, in operating with the theorem of ostensibly invincible frustration, Kafka comes as close as it seems humanly possible to come to this question without actually broaching it. His failure to broach the question explicitly in his works is not tantamount to a denial of a personal God but, rather, is undoubtedly a legitimate artistic procedure. It is only he who is not really convinced of the caducity of created being who will resent giving it *carte blanche* for an all-out attempt at justifying itself.

There is, moreover, a special reason why Kafka, like all people seriously devoted to fine arts, should be preoccupied with futility and frustration, for there is a sense in which all human expression, which is a merely human art, always fails in handling a truth. "Naturally," Kafka observes at the close of his "Letter to My Father" (which, persuaded by his mother, Kafka never delivered),

> in reality things cannot fit together so neatly as the examples in my letter, life is more than a game of patience; but were the proofs to be corrected on the lines suggested in my objection, a proof-reading which I am unable and unwilling myself to carry out in detail, something so near the truth would be arrived at that it might comfort us both a little, and make our lives and our deaths easier.[10]

Human expression is always doomed to a measure of failure and hence of frustration, not because it never hits the truth *exactly* or because it always hits just to the side of the truth (this would be modernism and skepticism), but rather because it always hints obliquely

[8] *Ibid.*, pp. 171-72, 185.
[9] *Ibid.*, p. 184.
[10] *Ibid.*, p. 19.

at more than it says directly. It is always in over its head. It always suggests, points to, things it does not say. Despite what Descartes and his followers have supposed, there is no human statement that is completely clear-cut at all its edges, for nothing can be said by man that does not in some way call for and depend upon further explanation. We can grasp no truth in *all* its implications, completely. There is no such thing as *total* statement within the reach of merely human powers.

Now a fine art that is fully serious supposes that its audience is as completely as possible wide awake, using all its faculties to the utmost. But nothing can really satisfy such application that is of its very nature incomplete and limited, that implies something outside itself, that implies in the very act of being what it is something other that it isn't. Hence a writer engaged with such an audience must take it for granted that the audience in the very act of apprehending the adequacy of the writer's expression will simultaneously sense its inadequacy and the fact that this inadequacy can never be entirely circumvented. The writer therefore will have to take into account this awareness. He will have to include in his work of art an acknowledgment of the very deficiencies involved in its being. This is the vanity inseparable from even the most serious art: it urges the all-out use of one's faculties while being forced to admit that this all-out use will not in the last analysis here be warranted. The serious artist must "plug" the product of his art and simultaneously make the very process of "plugging" it a "debunking" process. He must make his works ironic. Kafka's "something so near the truth that . . ." derives from, and acknowledges, the necessity of irony in mature artistic expression.

Kafka's very art itself thus brings him back on another plane to the frustration connected with the insufficiency of all created being. Since to be face to face with this insufficiency is the next thing to turning to God, Kafka is speaking with deep insight when he calls his writing "a form of prayer." [11]

It is, moreover, an indication of Brod's similarly fine insight permeating his entire treatment of Kafka's life that he should observe [12] that holiness "is the only right category under which Kafka's life and work can be viewed." The aptness of this category in summing up the most visible and assertive issue in Kafka's life cannot be disputed. In *The Trial* and *The Castle* the frustration is really that of the man who, willy-nilly, cannot bring himself to draft an answer to a question until he has laid out *all* the difficulties so that he can cover them *explicitly* in his answer. This is a bogus perfectionism so far as it makes the ability

[11] *Ibid.*, p. 78.
[12] *Ibid.*, p. 49.

to answer difficulties the chief measure, instead of a by-product, of truth. Difficulties distract us from the truth, for no difficulty concerns a truth *directly;* and the number of difficulties available concerning any truth is always potentially infinite. The thing to do is to find out whether a thing is so by the evidence *for* it and then, if it seems good, to proceed to the difficulties.

However, although to hunt complete satisfaction in terms of answers to difficulties is really to allow one's quest for happiness to be dominated by finite being, and although one cannot be sure how far Kafka escaped yielding to the temptation that the prospects of such a hunt could offer his painstaking, civilized mind, nevertheless, one must acknowledge that to concern oneself, as Kafka did, with the problem of complete satisfaction at all—to be a perfectionist—is in the last analysis to concern oneself in one way or another with God.

ARISTOTELIAN DEMONSTRATION AND POSTULATIONAL METHOD

YVES R. SIMON AND KARL MENGER

Editor's Note: These papers by Professors Simon and Menger inaugurated a series of discussions held at the University of Notre Dame on the question of the relations between philosophy on the one hand—especially Aristotelian-Thomistic philosophy—and scientific method on the other. The chairman of the discussions was the Reverend Leo R. Ward.

Professor Simon holds the doctorate in philosophy from the Catholic University of Paris. Formerly of the University of Lille, he has been professor of philosophy at the University of Notre Dame since 1938. He is a frequent contributor to learned journals and has published many works, among them The Notion and Function of Authority *and* Community of Freedom.

Professor Menger received his doctorate in mathematics from the University of Vienna. He is on the faculty of the University of Notre Dame and of the Illinois Institute of Technology. He is the author of Kurventheorie, Geometry of Analysis, *and other works, and has contributed articles to many learned journals.*

ARISTOTELIAN DEMONSTRATION

YVES R. SIMON

Mr. Menger and I are aware of the extreme difficulty of the task that we are attempting. It is our conviction that a great deal of further research will have to be made and that there will be many trials and errors before anything like a satisfactory answer to Aristotelian demonstration and postulational method can be worked out. Accordingly, dogmatism, which is always unbecoming, would be especially out of order in the present connection. Let us remember, however, that dogmatism is one thing and that doctrine-mindedness is quite a different thing.

Although my subject is limited to Aristotelian demonstration, I wish to stress that the purpose of Mr. Menger's and my joint exposition is to clarify, no matter how imperfectly, the relation existing between the kind of scientific reasoning described by Aristotle and the kind that has

become predominant in modern mathematics. Thus, while talking about Aristotelian demonstration, I shall bear in mind the problems raised by the recent development of postulational methods.

Let us start with a text directly concerned with these problems. It is from *The Historic Development of Logic,*[1] by Federigo Enriques. Speaking of the influence of mathematics on the reform of logic in the nineteenth century, Enriques has this to say:

> The mathematician of the nineteenth century can no longer be helped by the faith in his ability to derive the solutions of the problems of nature from the depths of his own thought. His intuition, moreover, is no longer subject to an external authority; his activity can and must, therefore, develop freely, shaping the framework within which the physicist will be able to arrange certain orders of phenonema in a formal way. But this does not mean that mathematical production goes on unbridled and unchecked and that all the water of the great river is scattered and lost in a thousand rivulets. The development of thought obeys certain inner controlling forces, and in the different currents there can still be seen a reflection of traditional problems. The various specialized tendencies are in this way reunited in firm knots which give birth to higher doctrines. In short, that order which the mind is not able to derive from external nature, it finds in itself, in the *full freedom of its activities.* It is not, however, an order that is given; it is one that is progressively constructed.[2]

Elsewhere, Enriques stresses an analogy between the "free conception of formal science" found in English logicians such as Boole and the use made by physicists of mechanical models.

A philosopher cannot help being struck by such emphasis laid upon the "freedom of the mind." The meaning and significance of this idea are not clear, but everybody knows that confused notions play a very effectual role in the history of thought. The increasing use of postulational methods in the most advanced and conspicuously successful departments of science has occasioned the rise of a whole philosophy of knowledge according to which the mind exercises freedom in the construction of the universe of science.

Such a philosophy of knowledge is sharply opposed to the Aristotelian ideal. According to Aristotelianism, complete necessitation by the object is an indispensable condition for the perfection of theoretical

[1] New York: Holt, 1929, p. 111. Copyright, 1929, by Henry Holt and Company, Inc.; reprinted by permission of the publisher.

[2] *Ibid.*, p. 128. (Italics mine.)

knowledge. Reluctance to accept this doctrine may result from a confusion between the laws of the intellect and those of the will or from a confusion between the laws of theoretical knowledge and those of creative knowledge. It may also result from a misconception about the relation of intellectual vitality to objective necessity. I should like to briefly discuss this last point.

The necessitation of the intellect by its object is often interpreted as a kind of compulsion. It is hastily assumed that the object is something purely and simply external or foreign to the mind. It is accordingly inferred that necessitation by the object means necessitation by an extraneous principle—coercion, violence—in conflict with the spontaneity and life of the intellect. A strong realization of the vital character of intellectual operations leads to the belief that the life of the mind, under ideal circumstances, would exclude all subjection to laws derived from the nature of the object.

The key to this difficulty is supplied by Aristotle's remarks on passivity in the process of knowledge. It is true that the theoretical intellect is passive with regard to its object, although it is active with regard to its operation. But there are two kinds of passivity. In the material or physical universe, "to be acted upon," "to undergo a passion," always means to lose a determination of one's own, for which another determination, springing from an extraneous agent, is substituted. The passions of material things are heteronomic: the law that prevails in them is not that of the patient but that of the agent. It is the privilege of the soul to be capable of passions in which the reception of a form, achievement, or accomplishment does not necessarily imply any concomitant loss. A purely advantageous passion is very properly termed an *autonomic* one, for the subject of such a passion does not suffer any harm, any infringement of its own laws or aspirations. What it received is purely its own achievement, its own actuation, its own accomplishment, according to its own law and under the influence of a friendly principle. The law of the object resembles the law of the mind, as Aristotle puts it, inasmuch as there is a resemblance between that which is A in act and that which is A in potency. The theoretical intellect desires its determination by its object just as any nature desires its accomplishment. Absolute necessitation by the object, far from conflicting with the spontaneity of the mind, represents the triumph of the mind's spontaneity. The necessitation of the mind by its object is not coercion, but necessitation from within. It is the very life of the mind in a state of accomplishment.

Such a triumph of intellectual spontaneity is not always possible. It is impossible whenever contingency renders explanatory processes un-

certain. We give the name *scientific universe* to the domain in which explanation admits of a character of full determination.

The argumentation that is the instrument of science ought first of all to be formally necessary, that is, valid. The theory of valid reasoning is about all that is commonly known of Aristotelian logic; yet let us recall that the purpose of logic, as Aristotle conceives it, is to guide the mind in eliciting conclusions that are not only validly drawn from their premises but are also true and necessarily true. The principal subject of Aristotle's logical writings is the theory of demonstration.

In order that a conclusion be demonstrated, in other words, in order that it be intelligibly established as necessarily true, what properties should the premises possess? Let us reduce the theory to its bare essentials and say that the premises of a demonstration may be the conclusions of previous demonstrations; as to the premises of these previous demonstrations, they also may be the conclusions of previous demonstrations; but this regression cannot be carried on ad infinitum. Ultimately it is necessary to have premises that are premises in an absolute sense and not conclusions in any sense. The absolute premises of demonstrations are self-evident or immediate propositions. They are indemonstrable.

But a proposition may be indemonstrable in either of two ways. A proposition may be indemonstrable from a deficiency on the part of the matter, as in contingent propositions; on the other hand, a proposition may be indemonstrable on account of its very excellence. It is a most important point of Aristotelian doctrine that the indemonstrability of the absolute premises does not follow from any deficiency, but from sheer excellence.

A comparison between Aristotle and Pascal will throw some light on this subject. In his celebrated essay "Of the Geometrical Spirit," Pascal outlines the ideal of a totally discursive science. Here are his expressions:

> I cannot better explain the method that should be preserved to render demonstrations convincing, than by explaining that which is observed in geometry.
>
> But it is first necessary that I should give the idea of a method still more eminent and more complete, but which mankind could never attain; for what exceeds geometry surpasses us; and, nevertheless, something must be said of it, although it is impossible to practise it.
>
> This true method, which would form demonstrations in the highest excellence, if it were possible to arrive at it, would consist in two principal things: the one, in employing no term, the meaning of which had not first been clearly examined; the other, in never advancing any proposition which could not be demonstrated by truths already

> known; that is, in a word, in defining every term, and in proving every proposition. . . .
>
> . . . . . .
>
> These things being well understood, I return to the explanation of the true order, which consists, as I have said, in defining everything and in proving everything.
>
> . . . . . .
>
> Thus, in pushing our researches further and further, we arrive necessarily at primitive words which can no longer be defined, and at principles so clear that we can find no others that can serve as proof of them.
>
> Hence it appears that men are naturally and immutably impotent to treat of any science so that it may be in an absolutely complete order.
>
> But it does not thence follow that we should abandon every kind of order.
>
> For there is one, and it is that of geometry, which is in truth inferior in that it is less convincing, but not in that it is less certain. It does not define everything and it does not prove everything, and it is in this that it is inferior; but it assumes nothing but things clear and constant by natural enlightenment, and this is why it is perfectly true, nature sustaining it in default of discourse.
>
> This order, the most perfect of any among men, consists not at all in defining everything or in demonstrating everything, nor in defining nothing and demonstrating nothing, but in adhering to this middle course of not defining things clear and understood by all mankind, and of defining the rest; of not proving all things known to mankind, and of proving all the rest. Against this order those sin alike who undertake to define everything and to prove everything, and who neglect to do it in those things which are not evident of themselves.[3]

Thus, for Pascal, the impossibility of demonstrating principles sets a limit to the perfection of science. Intellects more powerful than ours would do away with such limitation and would not know of any indemonstrable propositions. Nothing can be more anti-Aristotelian. According to Aristotelian doctrine, when we speak of the *in*demonstrability of the absolute premises, the prefix *in* signifies merely a negative way of conceiving a positive perfection. The self-evident premise does not lack any of the positive properties enjoyed by the demonstrated conclusion. It has all these properties and possesses, further, a perfection that a demonstrable proposition will never possess. The demonstrated conclusion owes its intelligible certainty and necessitating power to the demonstrative discourse, namely, to the working of a middle

[3] Trans. O. W. Wight in *Pascal, Thoughts and Minor Works* ("Harvard Classics," XLVIII, New York: Collier, 1910), 428 ff. (Reprinted by permission of the publisher.)

term; the self-evident premise possesses a higher degree of evidence and of necessitating power as a result of the very relation existing between the terms of which it is made, without there being any need for the working of a third term extraneous to the proposition. Pascal imagines superhuman minds endowed with a power of discourse that would not have to stop at indemonstrable premises; but St. Thomas, an Aristotelian, attributes to angels an intuitive intellect, free from the complex procedures of discursive thinking.

It can be said in a very proper sense that the scientific ideal of Aristotelianism is axiomatic. No proposition is fully scientific, according to this very exacting ideal, unless it is ultimately connected with self-evident statements, it being understood that the connection itself is supposed to satisfy axiomatic laws and to admit of no gaps. Whether this ideal is often realized is a different question. Over and above the fact that there are degrees of excellence in the scientific character of a genuinely scientific proposition, it is clear that in this world of contingency there is always a big discrepancy between that which is ideally normal and that which happens in fact. Let us say that the ideal of demonstrative knowledge materializes but in a small part of what has been actually constructed by the human mind in its endeavor to construct science.

Throughout his exposition of the theory of demonstration, Aristotle has in mind the pattern supplied by Greek geometry. For many centuries mathematics was universally considered the scientific domain in which intelligible necessity is most certainly reached. Speaking of Aristotle's ideas on axioms,[4] St. Thomas remarks that mathematical sciences enjoy a privileged position inasmuch as they use immediate principles in a more luminous fashion than the other sciences.

Paradoxically enough, it is in the very domain of mathematics that the Greek notion of a science whose entire life springs from the evidence of first principles has been seriously shaken by contemporary developments. No wonder if some interpreters were led to suggest that modern mathematical theories, by giving their principles the mere status of assumptions, have renounced the character of scientific knowledge and taken on a merely dialectical character.

There is nothing uncongenial about the notion that some epistemological facts pertaining to modern mathematics should be interpreted in terms of dialectic rather than in terms of science properly so-called. Yet it should be remarked that, owing to the very nature of mathematical abstraction, a procedure that elsewhere would be merely dialectical may well happen to possess a scientific character within the limits of

[4] *In IV Meta.*, 5. 588.

mathematics and of the mathematical interpretation of nature. Apparently, it is by testing this conjecture that we may some day definitely ascertain the relationship between the Aristotelian ideal of scientific demonstration and the postulational method. But testing this conjecture will require a huge amount of research.

In order to show, by way of examples, what directions such research might follow, I shall call attention to epistemological facts that may have a great deal to do with the proper interpretation of the postulational method.

1) There is the basic fact that mathematical abstraction delivers to the intellect a scientific object that is indifferently a real being or an *ens rationis*. Mathematics is not concerned with the real world; above all it is not an ontology of real quantity. It may well be that the idea of intelligible necessity, when applied to a domain in which the *ens rationis* is just as scientific as the real being, normally undergoes a reconditioning that makes for the appearance of a setback. Along the same line, let us observe that although real being and *ens rationis* are on the same footing so far as mathematical consideration is concerned, real being, in mathematics as well as elsewhere, enjoys priority over the *ens rationis* in the genesis of our concepts. No wonder if *entia rationis* are much more numerous and significant in mature mathematics than in primitive mathematics, in modern mathematics than in the mathematical sciences of the classical ages. We suggest that the development of the postulational method may be connected with recently increased awareness of the possibilities open to mathematical thinking so far as the creation of *entia rationis* is concerned.

2) The consideration of the mathematician is often primarily directed to what logicians call "nonultimate" concepts. An ultimate concept, taken objectively, is an aspect of a thing (which thing is not necessarily a real being). A nonultimate concept, taken objectively, is not an aspect of a thing, but is a sign or symbol by which an aspect of a thing is represented. Again, it may well be conceived that the notion of intelligible necessity needs to be reconditioned when it applies to a domain where many concepts, or most of them, directly refer not to things but to symbols.

3) Above all, the analogical character of truth should never be lost sight of. The traditional definition of truth as relationship of conformity between the mind and the real conveys a diversity of meanings within the very universe of the sciences of the real. When it is applied to sciences conversant with the universe of the logical entities or with the preterreal universe of mathematics, it calls for novel and more profound reinterpretation. Paradoxical skepticism regarding the rela-

tion of modern mathematics to truth possibly originates, at least to some extent, in the disappointment suffered by minds that, soundly equipped with the ontological apparatus of common sense, expected to find in the mathematical domain a kind of truth that mathematics does not admit of.

POSTULATIONAL METHOD

KARL MENGER

It was clear to Pascal that a deductive theory had to start with unproved propositions concerning undefined concepts. In the theory, we prove further propositions from the unproved propositions, and we define further concepts in terms of the undefined concepts. The necessity of unproved propositions in the foundation of a theory follows from the impossibility of continuing ad infinitum the process of proving; the necessity of undefined concepts follows from the impossibility of continuing ad infinitum the process of defining.

Unfortunately, these ideas of Pascal did not attract much attention and soon fell into complete oblivion. They were rediscovered in the eighties of the last century by the mathematician Pasch. The first deductive theory that was deliberately developed from unproved propositions concerning undefined concepts was projective geometry as developed by Pasch. Peano and his school worked along similar lines in the nineties of the last century. They applied the new conception of the theory to various branches of geometry as well as to arithmetic. What attracted the attention of most mathematicians and some philosophers was the exposition and application of the modern point of view in Hilbert's *Grundlagen der Geometrie*. Hilbert has been given credit even for the discovery of this modern point of view, which was clearly expressed before him.

Pasch had emphasized that the postulates (that is, the unproved propositions from which a theory is derived) may be considered as "implicit definitions" of the primitive concepts (that is, the explicitly undefined concepts in the foundation of the theory). The Italian school emphasized the "hypothetical-deductive" character of postulational geometry, in the sense that the geometer does not make any contention concerning the truth of the postulates, but merely asserts that if the postulates are valid, then the consequences he deduces from them hold.

In the years between 1890 and 1910, several general remarks concerning postulational theories gained widespread attention and acceptance.

1) One and the same theory can be derived from different postulates and in terms of different primitive concepts. For instance, the geometry of the Euclidian space was developed by Pieri in terms of "point" and "sphere"; by Veblen in terms of "point," "between," "perpendicular"; by Hilbert in terms of "point," "line," "between," "congruent," as primitive concepts. Why do we say that each of these theories, based on different postulates and different primitive concepts, is a geometry of the Euclidian space? There is an intrinsic justification, that is to say, a reason that can be formulated in terms of the postulates and concepts alone and without any reference to any objective entities described by the theories. Pieri's and Veblen's theories deserve the same name because Pieri can define Veblen's primitive concepts in terms of his own primitive concepts and can prove Veblen's postulates from his own postulates, and vice versa.

2) Incompatible theories can be derived, every one as consistent as the others. This fundamental discovery was made even before the development of the modern views when, at the beginning of the nineteenth century, Bolyai and Lobacheffsky developed the first non-Euclidian geometry, which since then has coexisted with Euclidian geometry and numerous other non-Euclidian geometries discovered later. Each of these geometries starts with postulates about undefined concepts called "points," "lines," and so on. All these geometries agree in some postulates, but differ about others. The original difference lay in the assumption about the number of lines through a point in a plane that are parallel to a given line.

3) The space of the work of observation was no longer considered an object of geometry. Geometry deals with propositions in terms of undefined concepts, whereas in space we observe chalk dots and chalk lines, cross-hairs and light-rays, and so on. The question as to which geometry is valid in the observer's space amounts to the following problem of physics and astronomy: Which statements about undefined "points" and "lines" do we observe to hold for chalk dots, chalk lines, cross-hairs, light-rays, and so on?

All the preceding remarks about postulational theories might have been made in the first decade of this century. The following serious question has come up more recently. A postulational theory consists of the logical consequences of its postulates. Which statements are logical consequences of the postulates? During the last decades we have learned that there are different logics. Each is a system of transformations of statements into statements. There are different consistent systems of such transformations; and a statement that can be derived from a given set of postulates by means of one set of transformations

may not be capable of derivation from the same set of postulates by means of another set of transformations. Will it sometime be possible to test the systems of deductive transformations by means of observation? Could we ever run into two incompatible observable facts, of which one follows from some observable facts by means of one logic, while the other follows from some observable facts by means of another logic? It might be that such discrepancies, if they occur, owing to the use of different logics, could only arise in regard to infinite totalities, so that observation could not decide which of the two discrepant conclusions follows.

A fact of comparatively minor importance that has greatly troubled some philosophers is the question as to what right we have to give the name "geometries" to more and more diverse theories about undefined concepts. Some mathematicians answer that we deal with "geometries" as long as the undefined concepts are "points," "lines," and so on. But this answer is not satisfactory because the content of these concepts is exclusively determined by the postulates (which Pasch called "implicit definitions"). Thus the question may be reformulated in the following way: What right do we have to denote the undefined concepts of some theories by the names of "points," "lines," and so on? It must be admitted that, today, many theories go under the name of geometry that Euclid would not recognize as belonging to the field of his studies. The reason why we call those theories geometry (and the undefined concepts "points," "lines," and so on) is this: the founders of non-Euclidian geometry varied only one of Euclid's postulates. Later, other postulates and more than one were varied. There is a continuous chain of coexisting theories, beginning with Euclid's and ending with theories that the beginner is at a loss to recognize as geometry.

NOTES AND DISCUSSION

A NOTE ON PROFESSOR JOAD'S *HOW OUR MINDS WORK*

R. J. Henle, S.J.

In his latest book [1] Professor Joad deals with the problems of psychology in his usual clever and clear-cut style. He tells us frankly, moreover, that his task is very difficult. The trouble is that psychology (the study of the mind) is still largely in a prescientific state. Many psychological theories are the sort of thing a clever man might hazard as a reasonable description of the other side of the moon. This would be, of course, sheer speculation—indeed, free speculation, since we are unhampered by any definite knowledge of the appearance of that shy hemisphere. Of course, if anything *definite* were discovered about it, the whole thing would cease to be open to speculation or—as Professor Joad calls it—philosophizing and would become science. There would be definite facts and, perhaps, laws that no "sane man" could deny. Whole areas of psychology, however, are still the game preserve of philosophers; that is to say, we have no real knowledge about them at all. We must wait for knowledge and certitude until the scientific psychologist, with his laborious and accurate experimentation, maps these areas inch by inch.

Now it turns out that precisely the large and important questions, those touching the true nature of the mind,[2] our freedom and immortality, lie in this hunting ground of the philosophers. There is no hope of certitudinal answers to these questions until the *facts* are hunted out by our indefatigable experimenters.

Any Thomist will have seen by now that Professor Joad recognizes only one real science of the mind, a science that is on the experimental level. This means, of course, that what is variously called the "philosophy of man," "rational psychology," and "philosophical psychology" has no scientific respectability, gives no true knowledge, and engenders no certitude. The Thomist, on the other hand, recognizes two approaches

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[1] C. E. M. Joad, *How Our Minds Work* (New York: Philosophical Library, 1947).

[2] To avoid misrepresentation, I must point out that Professor Joad opines that "mind" cannot be reduced to "matter." But he does not believe that this position can be established with scientific certitude.

to psychology, each distinct and valid, interrelated indeed but not formally interdependent. He, unlike Professor Joad, does not expect the experimental science to give scientific answers to the problems of the true essence of the soul, human freedom, and the immortality of the soul. He would admit that experimental science might yield a dialectical or preparatory approach; that it might even furnish the apologete with certain nonphilosophical arguments for the basic positions of the philosophy of man.[3] And he would maintain this position as a result of his own personal experience and insight. He has done metaphysical thinking and has developed philosophical habits; he knows—from doing—what a philosophical approach to a problem is. It is doubtful whether he would ever, without his actual training and exercise in it, have been able to see that there is such an approach. Indeed, there was undoubtedly a time in his own life when the arguments and explanations of philosophical psychology would have seemed to him mere speculation or even worse—mere words. All this is open to the verification of anyone who is introducing young students to Thomistic philosophy. At first, the whole business seems to them like a merry-go-round of mechanically prancing words. The instructor knows that there are no simple or obvious means to bring home to the students the insights for which the words stand and on which the explanations rest. But in the mutual co-operation of student and professor there is gradually developed a realization that here is a new and fruitful way of thinking, of approaching and solving problems—a way that is different, very different indeed, from that method to which the student has become accustomed in the experimental and physio-mathematical sciences.

Hence, to judge the certitude of a philosophical argument, a man must be much more than just the "sane man" to whom Professor Joad so often appeals. The certitude of metaphysics is, as Thomists maintain, in itself the highest of natural certitudes but it is not the clearest to all. The clearer and more universally acceptable certitudes are those that rest not on trained powers of discernment (as in literature, art, ethics, and metaphysics) but on methods that have a more mechanical character. The results of calculation can most easily be made clear to Joad's "sane man." But calculatory operations are precisely the ones that can be entrusted to the mechanism of adding machines. Insight cannot be entrusted to machines. Professor Joad's insistence on universally acceptable certitudes, is, in effect, an insistence on the lowest common denominator of untrained intelligence. I can quickly come to an agreement with the newsboy that four cents is not the correct change

[3] As a matter of fact Professor Joad himself presents some telling arguments of this sort against mechanistic psychologies.

when I have given him a dime for a five-cent paper. But I could never dream of making a metaphysical proposition seem certain or clear to him.

The point is that there is no obvious or easy way to bring home to a man the difference between experimental psychology and philosophical psychology except by putting him through the experience of it. And there is no way of proving its validity to a man except through his own practice of the method. As a matter of fact, it is almost impossible to justify the methods of any science before the methods are practiced, before the new habits of mind that they require are developed. Thus, to the uninitiate, some arguments of the geologists are almost fantastic, and the arguments of statisticians seem like sheer intellectual legerdemain. Indeed, the very methods of the physical sciences themselves would seem baffling and doubtful to us, except for the fact that those are the methods that have been drilled into all of us by the whole force of modern opinion and education. *Everybody* knows that experimental and mathematical methods yield true knowledge, while everybody knows that philosophy is a battle in which, as Kant said, no victory is ever won. This attitude, however widespread, is, of course, a provincial prejudice that can be located in time and place. The respect that Everyman has for physical science and the contempt he has for philosophy rest upon no real knowledge or experience of either science or philosophy. He has heard a widespread rumor that science has conquered philosophy; and the rumor has been substantiated, to his mind, by the manifold and very tangible practical products of scientific investigation. Everyman knows that scientific know-how has left a considerable mark on Hiroshima; he is aware that he owes his electric light and his refrigerator and his tooth paste and his hygienic habits to science. But the rumors that Everyman accepts would do little harm and be of small importance did they not find credence in other circles. For it is quite possible today to become an "educated man" and even a man eminent in many intellectual pursuits without ever acquiring the habits of mind requisite for philosophical thinking and for the *appreciation* of philosophical thinking. C. S. Lewis thus sums up the way this prejudice has grown up among modern educated men:

> And since the Sixteenth Century, when Science was born, the minds of men have been increasingly turned outward, to know nature and to master her. They have been increasingly engaged on those specialized inquiries for which truncated thought is the correct method . . . . The deeply ingrained habit of truncated thought—what we call the "scientific" habit of mind—was indeed certain to lead to Naturalism, unless this tendency were continu-

> ally corrected from some other source. But no other source was at hand, for during the same period men of science were coming to be *metaphysically and theologically uneducated.*[4]

In any discussion such as the present we are up against precisely the "ingrained habit of truncated thought." Is there any way to set forth in writing the reasons why a Thomist would reject the position of Professor Joad without doubt or hesitation and maintain that his larger questions are precisely the ones that philosophical psychology can answer and has answered with certitude and some degree of explanation and to which the methods of the experimental scientist will never and can never reach?

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[4] *Miracles* (New York: Macmillan, 1947), p. 52 (italics mine). (Copyright 1947 by Macmillan; reprinted by permission of the publisher.)

CHRONICLE

The American Catholic Philosophical Association held its twenty-second annual meeting in St. Louis on December 29 and 30, 1947. The general topic of the convention was "The Absolute and the Relative." Dr. Vernon Bourke of St. Louis University was elected president of the Association for the coming year. Boston was selected for the next annual meeting, to be held in Easter week, 1949; the general topic of the meeting will be "Philosophy and Finality."

The Jesuit Philosophical Association held its annual meeting in conjunction with the American Catholic Philosophical Association. The discussion centered about the teaching of philosophy. The Reverend Gerard Smith, S.J., of Marquette University, was elected president for the coming year, succeeding the Reverend John O'Brien, S.J., of Boston College. The Reverend James Conway, S.J., of Woodstock College, continues as secretary.

The Second Inter-American Congress of Philosophy was held jointly with a general meeting of the American Philosophical Association and the forty-fourth annual meeting of its Eastern Division at Columbia University on December 28-31, 1947.

The Southwestern Philosophical Conference held its ninth annual meeting on December 21-23 at the Jefferson Hotel in Dallas, Texas. The papers were devoted to Marxism, metaphysical and epistemological problems, and the philosophy of education.

Announcement Has Been Received of a projected First Argentine Congress on Philosophy to be held at the Universidad Nacional de Cuyo, October 12-16, 1948. The Congress will celebrate the first year of the promulgation of the Ley Universitaria, the first luster of the

foundation of the Instituto de Filosofía, the first decade of the University, the fourth centenary of the birth of Suarez, and the first centenary of the death of Jaime Balmes. The Congress will be concerned with (*a*) the human person, (*b*) human education, and (*c*) human society. All communications should be addressed to Pbro. Dr. Juan R. Sepich, Secretario del Primer Congreso Argentino de Filosofía, Rivadavia 125, Mendoza, Argentine.

BOOK REVIEWS

ELEMENTS OF SYMBOLIC LOGIC. By Hans Reichenbach. Macmillan Co., New York, 1947. Pp. xvi + 444. $5.00.

The author of this textbook of symbolic logic is professor of philosophy in the University of California at Los Angeles. His purpose is to make accessible to those who lack special mathematical training the new discipline that, it is assumed, "is on the march to replace the traditional Aristotelian logic in all fields" (p. v). The author, whose general position is closely related to that of the originators of the *Unity of Science* movement, departs therefore from the formidable expository tradition of which Professor Quine's *Mathematical Logic* is one of the latest examples, in order to meet a need that has been finding expression in the brief accounts of symbolic methods that are included in many recent textbooks of logic.

The book's principal merit is in providing a clear account of symbolic logic and in giving the reader adequate information about the origin and the use of symbols and operations on symbols. Furthermore, the inclusion, in the volume, of a large number of classified examples, together with the solutions of these examples, enables the reader to control readily his understanding of the text. It adds to the reader's possibilities of control that this collection of examples and solutions is not free from the blemish of the misprint.

It is an incidental merit of the clarity of the author's exposition of his material that he has made obvious the diversity of what Aristotelians call logic and what logisticians [1] call logic. The spirit of equivocation (in which Hegel, who experienced joy at stumbling on the naïve shape of one word with opposed meanings in a dictionary, would have

[1] In this review I have departed from the normal meaning of certain terms; I have copied the French use of the term "logistique." I use "logistics" instead of such expressions as "modern logic," "symbolic logic," "logical calculus," and so on; I use the adjective "logistical," deriving it from "logistics"; and I use "logistician" to mean a practitioner of logistics. This is not a wholly arbitrary use of the terms because the notion of a calculus is essential to modern logic. Furthermore, some such use of terms is necessary in order to stress the essential diversity of Aristotelian logic and modern logic.

rejoiced) that contributed so much to the confusion of conflict for half a century past, is now dissipated. In nine words, *Aristotelians and logisticians are not about the same business.*

We do not wish it to be understood that we hold that the logistic enterprise has added nothing to the store of human learning. We do wish to put on record—for the benefit of those who, in a spirit of imprudent eclecticism, might undertake the conciliation of the views of traditional logicians and those of the logisticians—an expression of our gratitude to the author of *Elements of Symbolic Logic* for his unambiguous statement of the aims of the logisticians. Obviously, since the empiricism of Hume, the logical velleities of Leibnitz, and the basic intentions of Kantian criticism constitute the remote philosophical ancestry of modern positivism, not all attempts at conciliation will result in a tenable position. You might just as well try to conciliate an eagle and a whirlpool as try to conciliate Thomistic and logistical positions.

Symbolic logic is, essentially, "the analysis of language" (p. 8). It is a consequence of the investigation of this formal object that the author relegates the syllogism "to a special chapter in which some secondary forms of inference, referring to class relations, are developed" (p. 208). Even this is not quite an exact statement of the position. The author analyzes certain of the arrangements of words that, in a textbook of traditional logic, would have been used to signify the products of the operations of the reason. But since symbolic logic is, formally, the analysis of language, it is not a study of the types of rational operations effected by the intelligence in the actual course of thinking. Instead, the analysis of language aims at arriving at what is called *formal thinking;* in other words, in symbolic logic, "mechanical manipulations with symbols, distinguished only by geometrical shape, *take the place* of thought operations based on realizing the meaning of the symbols" (p. 165, italics mine). A set of words (which may or may not signify the product of some operation of the reason) is considered in abstraction from the thought process to which it refers, and in the place of this verbal arrangement there is substituted a symbolic device upon which mechanical manipulations may be effected in accordance with the rules of a calculus. Such a symbolic device will appear among or disappear from groupings of formulae in accordance with rules that have been framed to control and regulate, not the intellectual operations of man who is thinking, but the mechanical processes of substitution which specify an algorism. Symbolic logic is not concerned with enabling men to advance with order, ease, and correctness in the act of reason itself. On the contrary, it replaces the

consideration of intellectual operations and the order that reason introduces into its proper act by the manipulation of ideographic signs with operations (analogous to mathematical operations) that allow men to *dispense* (to a large extent, at least) with thinking, thus leaving the mind freer "to pursue other activities that withstand mechanization" (pp. 165-66). But since the whole set of ideographic signs that are normally used to signify the products of rational thought (including the principle of identity) are reduced by logisticians to symbolic expression, and since what has been thus reduced disappears, once introduced into the apparatus of mechanization, from thinking, it becomes very difficult to understand what the mind has been liberated for and what "deeper insights" (p. 166) it will have been prepared for. Screwtape, if I remember correctly, informed Wormwood (poor, miserable Wormwood, who had been the selected victim from the start) that he (Wormwood) was there to *fuddle* men, not to teach them. Above all, men were to be stopped from using their reason. From this point of view logistics may be thought of as a tactical operation for the purpose of imposing empiricism on men, rather than a disinterested speculative discipline.

That there is equivocation in using the term "logic" as an identical term in the expressions "traditional logic" and "symbolic logic" is thus rendered abundantly clear by our author's text. Without wishing to be nasty, it is necessary to state that the logisticians need feel no satisfaction at this state of affairs. Everywhere, and not only in history, there are cunning passages, "contrived corridors," as T. S. Eliot calls them. The intelligence, the late Paul Valéry once wrote, does not forgive. In other words, logic, the traditional logic, tortures its liquidators in the long run. Despite the casual presentation of the antinomies (pp. 218-26), the problem of their solution has introduced, on the author's admission, a period of criticism into logistics. This is putting it mildly. Despite "decisive steps" (p. 225) in a *new* direction, it would appear that all is not yet sound in the ship. It is not going to be so easy as some people have hoped to set sail over Carnap's ocean of infinite possibility. Some future budgeter of paradoxes will derive intense amusement from writing a chapter on the fallacy, amongst others, of the indiscriminate construction of classes. He might well entitle this chapter "Life among the *Entia Rationis Ratiocinantis*."

At one time the ideal of logisticians might have been caricatured as the aim of constructing a machine for the production of all possible combinations of ideographic signs and the co-ordination of this machine with another one whose task would have been to assess the "truth" or "falsity" of all possible combinations of ideographic signs,

man being thus delivered from his quite intolerable specificity and left free for new insights. Professor Reichenbach shows, implicitly, that this aim is now considered to be impossible of achievement. "The attempt to formalize all thinking leads to an infinite regress" (p. 183). Logisticians, therefore, require some discipline other than, and superior to, symbolic logic to enable them *in ipso actu rationis ordinate et faciliter et sine errore procedere.* Symbolic logic—as the fissiparous tendencies characteristic of the logistical movement since its beginning manifest clearly—will be fruitful only so far as it is subordinated to the traditional disciplines that it was designed to replace.

We have shown the essential divergence between the aims of traditional logic and the aims of logistics. It is time now to say something more about the merits of the book we are examining. It is just because the logistical effort has been in the direction of an extreme refinement of the means by which men signify the infinite variety of the inflections of thought—in the direction of a purification of our means of conceptual expression—that logistics has contributed to the increase of knowledge. Professor Reichenbach's book makes it possible for any attentive reader to grasp the detail of logistical analysis of relations among verbal terms. It is therefore of great value in the present state of these difficult questions.

The interesting chapters, eight and nine, on the analysis of conversational language and on the applications of symbolic methods to the problem of the exact expression of the results of physical science, deserve wide attention. This does not mean, however, that Professor Reichenbach's views should be accepted without discrimination by, for instance, grammarians. In view of the fact that so much that lies beyond the mere grammarian's competence is involved in this matter, it is to be hoped that Professor Reichenbach's expressed wish "that the results of symbolic logic will some day, in the form of a modernized grammar, find their way into elementary schools" (p. 255) will not be realized for a long, long time.

It is to be regretted that a number of mistakes can be found in this book where the author refers to the work of the traditional logicians. Amongst others, we note the following. (*a*) The "definition by determination of *genus proximum* and *differentia specifica*" (p. 22) is not, as the author allows it to be understood, the only form of definition used in traditional logic. In chapter ten of the second book of the *Posterior Analytics* Aristotle refers to three types of definition. John of St. Thomas determines six different types of definition. At present, logicians who follow the traditional treatment of the subject distinguish no less than ten different types of definition. (*b*) There is reiterated

(p. 95) the usual logistical attack upon the traditional treatment of the square of opposition. This attack is founded upon the primary, essential diversity of logic and logistics. It may be noted, however, that the Scholastic treatment of the *suppositio* and the *ampliatio* provides evidence that traditional logicians had considered and solved the difficulties first raised by MacColl against their treatment of the square of opposition. (*c*) There occurs on page 208 the curious statement that the early logicians (this, the context shows, includes Aristotle) made "the mistake of planning a logic of knowledge without the consideration of the most rigourous and most creative instrument of thought, without an analysis of mathematics." Yet "it is noteworthy," remarks W. D. Ross in *Aristotle* (p. 44), "that almost all the examples of presuppositions and propositions in the First Book of the Posterior Analytics are taken from mathematics." (*d*) The author mentions (p. 209) "a logical operation which traditionally has been called abstraction." The reader is left with the impression that the traditional schools knew only one kind of abstraction. This is not so. Of the two types of abstraction (irreducible one to the other) known to the traditional schools and studied, both of them, in psychological and logical contexts, the author considers only that type of abstraction which was called *abstractio totalis.* It is amusing to note that, for the traditional logicians, abstraction of this particular type was not the abstraction proper to scientific thought. The whole matter has been discussed most thoroughly by many writers, in particular by Cajetan in his commentary on the *De Ente et Essentia* (*In De Ente et Essentia,* ed. Laurent [Turin: Marietti, 1934], pp. 6 ff.) and by Jacques Maritain in *Les Degrés du savoir* (1st ed.; Paris: Desclée de Brouwer, 1932, p. 71).

Mistakes of the kind illustrated above should not have found place in an exposition of a discipline that is unrestrained in its pursuit of exact statement.

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THE PHILOSOPHICAL FRONTIERS OF PHYSICS. By Vincent Edward Smith. Catholic University Press, Washington, 1947. Pp. xii + 210.

A period of military service interrupted the author in his preparation of this doctorate thesis, which is noteworthy both for the breadth of reading displayed and for the skillful manner in which are co-ordinated the diversity of topics suggested by a philosophical investigation of modern physics.

The book begins with a chapter in which the author discusses, first, various views that have been held concerning the relationship of philosophy and the experimental sciences, and, second, the general characteristics of scientific method. The reviewer is not so sure that it is correct to assume that "both chemistry and biology resolve themselves, in their last analysis of structure, to atomic physics" (p. 13). In the prolegomena to a theory of the sciences more should be made of a principle to which the author calls attention at a later stage in his exposition (p. 117): *psychologica psychologice traduntur*. Much depends, in these matters, on the mode of approach to the object. There are, for instance, different "biologies" because the one approaching the biological object is not always a biologist. Let a chemist approach the biological object and you will doubtless obtain a scientific discipline (and, at that, a valuable one); but will this discipline be biology? The reviewer has heard a physicist remark of a certain worker that he attacked his (physical) problems like a chemist. Quite recently we have had a logistician approach the biological object. There should be a society for the prevention of doing violence to the objects of knowledge.

After the preliminary chapter, in which the author restricts his purpose to examining the logical procedure of physics, there follow chapters dealing with measurement in physics, the application of mathematics to the physicist's object, the notion of empirical law, and the function and significance of physical theory. These chapters are concerned with the analysis of physics from within. More attention should have been given, in the reviewer's opinion, to the philosophical theory of measure; but the chapters devoted to the analysis of physical hypotheses are valuable.

In the latter part of the book are placed two chapters of a more philosophical character, in which are studied problems concerning proof, law, and specific objects. Towards the end of the book the author distinguishes the respective domains of physics and philosophy. He concludes, as a result of his analysis, that the philosopher's knowledge "grows by an *intensive* deepening of the universal whole," which brings him "into contact with reality's farthest depths" (p. 196). The physicist's knowledge "grows by *extensive* passage from part to part" and "does not touch the level of being, of unity, and of form" (p. 196). Because physics "has clear-cut philosophical frontiers within which it will continue to advance but beyond which it may not go" (p. 197), and since it is reasonable "to recognize limits imposed by the nature of things" (p. 197), the author looks forward to a time when poet, philosopher, and scientist can work together *again*.

Were it only a question of sweet reasonableness, one might perhaps look forward to the realization of such a beautiful situation. But if recent analyses of what has been called the empirical method are in accordance with the nature of things, it would seem that at the heart of empirical method there is a set current against the natural tendency of the human intellect. If this is so, the prospects of a peaceful settlement of the frontiers between philosophy and physics are not heartening.

Works like this one of Dr. Smith's are valuable as contributions to badly needed philosophical reflection on the multitudinous affirmations of the scientists. The more we have of such studies the better. Still, there is a danger to be avoided in them. Granted the necessity of historical introductions, it is by no means necessary that such introductions should be conceived entirely in dependence upon previously written introductions of the same kind. In order to achieve as perfect a theory of the sciences as possible, it is necessary to analyze critically a number of slogans that reach us from a fairly recent past. Thus to write, as our author does, "Bacon contributed the method of observation and experiment" (p. 6) to modern science, is merely to repeat something that may have a propaganda value in certain places; it is not to produce a fact relevant to the theory of the sciences. The analysis of commonplaces would form a useful appendix to philosophical investigations into the nature of the experimental sciences.

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THE WEB OF GOVERNMENT. By R. M. MacIver. Macmillan Co., New York, 1947. Pp. 498. $4.50.

To understand the scope of this treatise one should be aware of the very interesting career of scholarship of which it is the culmination. Professor MacIver began his academic work as a classicist. As is fairly common in Great Britain (and especially in Scotland), he turned to political science, and in 1926 he published *The Modern State.* As he changed residence from Scotland to Canada and then to the United States he interested himself more and more in the configurations of society underlying political forms and processes. He wrote his classic *Community,* followed it with his *Society: Its Structure and Changes,* and tackled the most elusive problem in sociology a couple of years ago in his *Social Causation.* The propositions that he developed incidentally in his previous works have been woven into the substance of this one.

In *The Web of Government* MacIver has come forth as our foremost exponent of the sociological approach to the study of political science. The groundwork of this approach is the distinction between society

and the state. MacIver is the only scholar in this country who has produced a full-length treatise on government based on this approach. Although, in the opinion of this reviewer, it is the most fruitful way of studying political science, it has so far not been very widely used. The reasons are simple. There are not many top-flight sociologists in the first place, and there are hardly any that can boast of enough competence in political science to apply the sociological method to that cognate field. Likewise, there are scarcely any political scientists who are well-trained sociologists.

Society, in MacIver's view, consists of a "web" of relationships set up by men with their fellows in the processes of meeting their daily needs. Men and women marry, set up homes, rear children, and somehow manage to provide for themselves and their families the basic necessities of food, shelter, and clothing. They engage in economic enterprise; they arrange systems of education and worship and recreation; they develop social institutions, means of transportation, and differentiations of class. This is their social organization. It requires, at every step, some form of authority. And as human ingenuity improvises new techniques, as human thought takes on new forms, this social organization moves in a process of constant change—sometimes slowly, sometimes quickly.

Because social organization has a certain coherence, changes in one phase bring about changes in other phases.The modern city is the product of economic changes and changes in human ideals. But the modern city, with the premium it puts upon space and the emphasis it puts upon fashions and expensive recreations and luxuries, transforms family life.

Forms of government, although they in turn affect social transformations, are themselves largely reflections of the forms of social organization, especially forms of property ownership. We are witnessing at present a great change in government in response to the growing political power of industrial labor organizations, which have themselves grown powerful in response to the exigencies of industrial organization.

Dozens of questions discussed in this volume could be analyzed. But the paramount contribution of *The Web of Government* lies less in its treatment of subtopics than in its presentation of the sociological "overall" method of viewing each phase of government as the result of various social impacts. No other book affords the student the same insight into this new and fertile manner of examining political forms and changes.

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THE INTELLECTUAL ADVENTURE OF ANCIENT MAN. By H. and H. A. Frankfort, John A. Wilson, Thorkild Jacobsen, William A. Irwin. University of Chicago Press, Chicago, 1946. Pp. vii + 401. $4.00.

This book treats principally of three cultures of the Near East: the Egyptian, the Mesopotamian, and the Hebrew. The exposition of each culture has been entrusted to an acknowledged expert in his particular field: the Egyptian to John A. Wilson; the Mesopotamian to Thorkild Jacobsen; the Hebrew to William A. Irwin. There is an introductory chapter on the nature of myth and a concluding chapter on the emancipation of thought from myth. Both were written by the distinguished archaeologist H. Frankfort, in collaboration with his wife, H. A. Frankfort, an earnest student of philosophy.

Despite the diversity of authorship, a certain unity runs through the entire book. This is supplied by the definition of myth explained in the first chapter, to which all the contributors adhere. Each contribution reveals an extensive knowledge of the subject treated, coupled not infrequently with real insight into the problems discussed. And there is always a serious and honest endeavor to clarify the obscurities of these ancient civilizations and to present the results of scientific investigation in a readable way. References to sources are given, and at the end of each chapter there is a list of books considered suitable for further reading. An index facilitates the use of the book.

The first chapter presents a stimulating and plausible account of the origin and nature of myth and of its differentiation from legend, fable, poetry, and fantasy. However, in an incidental allusion to holy Communion as a myth, the authors betray a woeful lack of knowledge and discernment that somewhat shakes our confidence in their philosophical acumen.

Wilson's contribution on the culture of Egypt (chaps. ii-iv) is in keeping with the author's reputation for scholarship. His observations on the psychology of the Egyptians are enlightening. He succeeds in making the cosmologies of the Egyptians intelligible; and this will prove a boon to students of philosophy and theology, who are frequently misled by the scanty references of textbooks and commentaries. He shows that the Egyptians considered all the parts of the universe, including their deities, to be uniform in composition. This throws a flood of light on many of their beliefs and indicates that their alleged manifestations of monotheism were rather a form of monophysitism. The Egyptian attitude towards life, here and hereafter, is carefully analyzed, and the ultimate contribution of Egypt to world progress is judiciously appraised.

Jacobsen's essay on early Mesopotamian or Sumerian culture is no less interesting and rewarding (chaps. v-vii). According to Jacobsen, the Sumerians regarded the entire universe as a cosmic state governed by an assembly of the gods presided over by Anu and regulating the affairs of their realm by unanimous decision after suitable debate. Since some part or phase of the universe had been entrusted to each of the principal gods, Jacobsen sets forth the character of each of these gods at considerable length. In addition there is a searching study of a number of myths that embody the ideas of the Sumerians concerning the gods and natural phenomena.

Jacobsen also explains the relation of the city-state and the nation to the cosmic state and the gods. He shows that man was deemed to be a mere servant of the gods, with whom he was not on terms of intimacy and from whom he could hope for nothing but uncertain reward, despite the most abject servility. How Mesopotamian sages regarded death, suffering, and earthly felicity is made evident by a study of certain products of their literature, such as the Gilgamesh Epic, the *Ludlul bel Nemeqi,* and the *Dialogue of Pessimism.*

Wilson and Jacobsen thus set the stage for the vividly contrasting culture of the Hebrews, which is sketched by Irwin. In chapter eight he writes eloquently and intelligently about the monotheism of the Hebrews, the sublime ethical character of their God, and his transcendence over nature. There were, no doubt, skeptics among the Hebrews; but to rank the author of Proverbs 30:1-4 and Ecclesiastes among these, as Irwin attempts to do, is to misinterpret the evidence.

In chapter nine he proves that Israel's thought concerning man was unique in its elevation. Man's superiority to the beasts, which is prominent in the Old Testament, is not contradicted by the depreciatory statements of Ecclesiastes 3:18-21 or Job 4:19, as Irwin would have us believe; these statements are restricted to certain aspects of man's existence. The view favored by Irwin that matter is conceived as coexistent with God is contradicted by the whole tenor of the Old Testament. Irwin correctly portrays Israel's consciousness of sin, but he underestimates the intimations of original sin. The Hebrew idea of a good life is well outlined, and the fact that it was supremely a religious life is duly stressed. Irwin thinks that the idea of God evolved in Israel from that from a temperamental, vindictive being to one in whom mercy was uppermost; but this is more than questionable. He arbitrarily rejects the earlier stories of God's extraordinary manifestations to man as legendary; in his opinion revelation was essentially an inner communing of the spirit with God. The Hebrew notions concerning human freedom and the constituent parts of man are expounded

lucidly. Much that Irwin says about the Hebrew attitude towards knowledge is true; but they surely did not entertain the view ascribed to them by Irwin that there were certain realms of knowledge reserved to the deity that man must not dare appropriate lest he commit cosmic larcency. Moreover, it is misleading to say that Proverbs depicts divine wisdom as a cosmic quality inherent in the world and in human life. This assertion has a pantheistic tinge foreign to the Old Testament.

In chapter ten Irwin emphasizes the fact that Israel had a concept of the natural law, although exception may be taken to his definition of this law. He labors to prove, with futile endeavor, that this concept in its early stages was connected with magical notions. He conjectures that Israel's primitive idea of positive law was that might is right. He supposes that more ethical ideas gradually prevailed, so that ultimately the natural law came to signify God in his holiness and righteousness revealing his will to sinful man. Needless to say, there is no proof that orthodox religion ever went through these stages of development.

Irwin's treatment of the manner in which Israel applied her standards of right to the stranger, the slave, and foreign nations is on the whole commendable. He says some excellent things about the science and art of history, but we cannot agree that the sacred writers accepted the improbable or the unattested.

Chapter eleven deals with the Hebrew thought about the nation, society, and politics. Irwin asserts that the notions of a divine covenant and a divine choice were later developments and were not to be found in the nascent stages of the nation. His discussion of universalism, which is connected logically with the preceding, is not altogether satisfactory. The social and political problems of the nation are set forth with much penetration. But the explanation that he hazards of the incident relating to David and Abishag is unwarranted. His statements about the Deuteronomic code and the limited monarchy of Josiah need qualification. Irwin finds that there was but little antagonism between the monarchy and the priesthood before the exile. He seems to regret the rule of the high priests after the exile; his ideal seems to be an invisible church guiding the nation.

In the final chapter the authors speak eloquently about the preeminence of Israel's culture over that of the other nations of the Near East, but they are more attracted by the Greek philosophers who are supposed to have emancipated the world from myth. In fact, they assert that the Hebrews created a new myth—the myth of the will of God, which is said to have been a prelude to the later myth of the kingdom of God. That these ideas may have a perfectly rational basis does not seem to occur to these authors.

In conclusion, we may say that Wilson's and Jacobsen's contributions seem to be the best parts of the book. Irwin's essay cannot be recommended to the general reader because it espouses too many bizarre ideas and contains too many sneering allusions to authoritarian religion. The idea that the will of God is a myth can only lead to chaos and despair.

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THE AFFIRMATION OF IMMORTALITY. By John Haynes Holmes. Macmillan Co., New York, 1947. Pp. viii+75. $1.50.

The present small volume is Dr. Holmes's contribution to the long series of Ingersoll lectures on the immortality of man. The book might best be characterized as the musings of a mature sage. The calm, dignified, oftentimes beautiful expression of the essay deserves consideration for its high literary value quite independently of its philosophical content.

Dr. Holmes begins his argument for the immortality of man with the very true remark that the positive, psychological approach cannot be applied to the question at hand. Immortality is founded not on the material but on the spiritual. After that, however, Dr. Holmes seems uncertain. That there is such a thing as spirit is derived from the fact that without it human personality, the affirmation of mystics "from Lao-tse to Emerson," the evolution of the universe from material to rational, and spiritual existence cannot be explained. The immortality of man is then a necessary hypothesis to explain phenomena. And in so far as facts are thus explained, in some measure the immortality of man is proved.

Despite many wise observations, Dr. Holmes simply lacks the metaphysics to pursue his philosophizings to a successful conclusion. Nowhere does he show evidence of any but the haziest notion of the spiritual. Underlying all his thought is an earnest desire to establish man's immortality, which but leads him to a merely voluntaristic affirmation of little interest or value to the Catholic philosopher.

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BOOK NOTES

PAPAL LEGATE AT THE COUNCIL OF TRENT: CARDINAL SERIPANDO. By Hubert Jedin. B. Herder Co., St. Louis, 1947. Pp. viii+720. $7.50.

While this book will be of interest primarily to historians and theologians, students of philosophy will find the chapters "Platonist and Humanist," "Egidio of Viterbo and the Neapolitan Humanists," and "New Interests and New Horizons" valuable for the general view of philosophical thought in the first half of the sixteenth century.

The volume is well bound and clearly printed and has an extensive index.

COMPENDIUM OF THEOLOGY. By St. Thomas Aquinas. Translated by Cyril Vollert, S.J. B. Herder Co., St. Louis, 1947. Pp. xx + 366. $4.00.

Father Vollert has given us a clear and accurate translation of St. Thomas's *Compendium Theologiae*. The author tells us in his preface that he prepared the translation for those students who are not fully at home in Latin and that he expects the work to be useful in courses in religion and theology for the laity. One can confidently predict that this expectation will not be disappointed. Indeed, philosophy students, too, will use many parts of it to advantage.

The book is well printed and well bound. There are an index and footnotes containing sources and cross references.

BALMES EN EL PRIMER CENTENARIO DE SU MUERTE. Vol. III of *Pensamiento* (número extraordinario). Madrid, 1947. Pp. 335.

Pensamiento offers a special commemorative issue on the occasion of the centenary of the death of the Spanish philosopher Jaime Balmes. The following papers are included:

Balmes, filósofo. Su personalidad y significación. By the Excmo. e ilustrísimo Sr. D. Fidel García, Bishop of Calahorra.

Importancia de Balmes como filósofo. By Camilo Riera.

El sentido común, fuerza estabilizadora de la filosofía balmesiana. By Miguel Florí, S.J.

Doctrinas discordes de Balmes y Comellas acerca de la evidencia. By Marcial Solana.

La teoría balmesiana de la sensibilidad externa y la estética trascendental. By José Sauret, S.J.

Qué piensa Balmes del "entendimiento agente"? By Jesús Muñoz, S.J.

Descartes y Malebranche en las concepciones espacio-extensionales de Balmes. By Jaime Echarri, S.J.

Las doctrinas cosmológicas de Balmes y las teorías físicas contemporáneas. By Pedro Font Puig.

La filosofía moral de Balmes. By Clemente Villegas.

Balmes y la filosofía de la historia. By Tomás Carreras y Artau.

Filosofía balmesiana y filosofía cervariense. By Miguel Batllori, S.J.

Balmes y Unamuno: sentido común y paradoja. By Jesús Iturrioz, S.J.

A bibliography is provided, made up of selections from the longer bibliography of Ignacio Casanovas, S.J. (1932), as well as from the later literature on Balmes. There is also an index of names.

NEOPLATONISM AND THE ETHICS OF ST. AUGUSTINE. VOL. I, PLOTINUS AND THE ETHICS OF ST. AUGUSTINE. By Bruno Swifalski, C.SS.R., S.T.D. "Polish Institute Series," No. 8; Polish Institute of Arts and Sciences in America. 1946. Pp. xxxii + 113.

The first part of this book presents the basic ideas of Plotinus's and St. Augustine's ethics. The second part studies the influence of Plotinus on St. Augustine's conversion, general philosophy, and ethics especially.

There are an extensive and valuable bibliography on Plotinus and a brief index.